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The EDITOR'S CORNER

THE PAST YEAR has been such a busy time for most of us that very few have had an opportunity for reflection upon the significance of recent events which have taken place in swift succession. But with the turn of the year, there is a tendency to glance back over the preceding twelve months—to take an inventory, as it were, of what has gone before.

Prosperity was the crowning feature of 1916. Very few plants are reporting anything but an entirely satisfactory year; some a record-breaking business.

There is one thing, however, that we should not forget but should strive to make a reality with increasing earnestness. Now that prices are good, let us get closer together, and bound with the tie of our mutual welfare, firmly resolve that in 1917 we will all—pulling together—put the clayworking industry on such a basis that a falling off in demand at any time in the future shall not witness a like decline in the price that we are obtaining for our ware.

Present margins between the cost and selling price of clay products are small enough, even with a great many plants "burning the midnight oil," figuratively speaking. Why then jeopardize the advancement of the business by insisting upon continuing the struggle incident to the conduct of a no-profit undertaking. We cannot make improvements in our plant and organization, unless we make some money, and if we do not make improvements, we will soon pass out of existence by the dry rot route.

* * *

Co-operative Buying

IT IS PROBABLE that very few of us gave much attention to a certain brief newspaper item as we journeyed from the European war dispatches to the latest suit for "heart balm" between the grape fruit and coffee one morning not long past. This item had to do with action taken by a group of eastern newspaper publishers in purchasing, jointly, a paper mill with a view toward putting an end to the robbery which they have been compelled to suffer at the hands of news print paper producers.

Of course, those of us who of a necessity must buy at frequent intervals large quantities of paper undoubtedly read this "story" with considerable interest, but there is a deep significance in this action of the newspaper publishers which should give all of us much food for thought. *It should "drive home" to every clay products manufacturer in this country the possibilities of co-operation.*

Ah, this is an old friend—*Co-operation.* We have heard a great deal about him in these columns and elsewhere in the days gone by, and some of us, perhaps, who have never come in contact with his helpful influence, have grown rather tired of hearing his name. But the fact remains that co-operation has become a mighty influence and is destined to achieve even greater power in the business world of the future.

Now, when fuel is one of the most distressing problems of the clay products manufacturer, why cannot some of us get together and in a co-operative manner buy coal *or even operate a mine?* A mine operating entirely for clayworkers would have the same output summer and winter, the prices of fuel would not fluctuate and the expense the year around would be comparatively small. Co-operation is the keynote nowadays.

* * *

A Good Resolve

NOW, that the old year is gone and the new year is come, one of the best resolves that you can make is to get the old cost keeping system up to a point where it tells you truthfully and accurately just what your ware is costing you to produce, or, if you do not have any method whatever for securing this information, to install a cost accounting system at the earliest possible moment. To be without some method for keeping costs is to court low prices, loss of legitimate profit and ultimately disaster.

In this connection, "Brick and Clay Record's" system of cost keeping is available to all who wish to make use of it. Many of our readers are taking advantage of the information that is being published in installments under the heading "Cost Accounting for the Clay Plant," and are writing in to us asking questions about this thing or that, all of which indicates a tremendously growing interest in an improvement which many believe will work toward the stabilizing of prices.

* * *

Time for Action

THE WISDOM of inviting all classes of building materials to join in one large exposition, with a view not only of bringing more forcibly to the attention of the building public the advantages of each material, but also to promote a greater interest in building itself, was demonstrated to the entire satisfaction of all concerned at the First Complete Building Show held in Cleveland, Ohio, during February, 1916. The majority of exhibitors at this show found that they had made more than a good investment, evidence of which is seen in greatly increased sales of all building materials, including clay products, in the "Sixth City" during the period immediately following the show.

It has been learned from good authority—none other than the managers of the National Complete Building Show Company—that no provision has as yet been made by brick and other clay products manufacturers to take space in the National Complete Building Exposition which is to be held in the Grand Central Palace, New York, March 5-11.

We are not agents for the National Complete Building Show Company in any sense of the word, and we get no "rake-off" for urging anyone to buy space, therefore, we have no selfish interest in the matter when we call attention to the clayworking fraternity of this country that it is playing a dangerous game in hesitating over the decision as to whether or not it is going to have any representation at the coming show. It is dangerous because procrastination may result in all of the desirable space being sold and the industry being forced to take a "back seat" or shut out from the exhibit as a result of not acting promptly.

With every building material under the sun represented, it is going to be a serious reflection upon the business sagacity of the clay products manufacturer to be conspicuous by absence.

WHAT SHALL WE STRIVE

A Glance Back Over the Year That Has Gone, With Its Unprece-
Future, Concerning Which We Are Given, by Some from Our Own

A REVIEW of 1916 can very easily be epitomized in the following words—*greatest year from an industrial standpoint in the history of the United States.*

The past year has truly been wonderful. As one writer has very aptly put it, if the increase in wealth and business prestige which has come to the United States in the past twelvemonth had been predicted ten years ago, the dream would have been called the wildest of fantasies. That the dream, however, is actually a fact is seen in evidences which lie all around us and which is made more real by the knowledge that we are wealthier to the sum of $3,585,000,000 in coin and credit which has come from foreign countries.

TREMENDOUS INCREASE IN FOREIGN TRADE

In spite of the fact that the present administration in Washington has repeatedly asserted that the foreign trade of this country constitutes but one per cent. of its business, it remains that the foreign trade of this country enjoyed an expansion during the past year beyond the bounds of prediction. For the first eleven months of the year, the exports were $4,961,-200,000, according to Eugene Hector, financial editor of the Chicago "Tribune." The estimate for the full year is, roundly, $5,332,000,000, which compares with $2,867,000,000 for the full year of 1915. The increase has been over $2,464,000,000, eighty-six per cent., or nearly double the previous year.

Imports for the eleven months were $2,186,800,000 and for the entire year are estimated at $2,411,-000,000, leaving the net gain in exports $2,920,000,-000. This, with the importations of gold, not net in the latter instance, brings 1916 totals above the figures of wealth and credit previously known.

GOOD BUSINESS HELPS CLAYWORKING

But what has all this wealth to do with the outlook for the clay products industry during the coming year? Simply this, that when money is plentiful, buildings go up in larger number, more homes are bought, all of which creates an increased demand for the best of all building materials.

It is a noteworthy fact that the real estate market has been unusually good in the past year, which helps in the general increase of activity for the clay products manufacturer. Notwithstanding the handicap which always attaches to a presidential election year in a business way, as well as a number of other unfavorable conditions with which it had to contend, the real estate market has made a surprisingly good showing.

Real estate loans, which always have a direct bearing upon the amount of building done, have been very active during the past year. Owing to an ample supply of money, bankers and life insurance companies have been anxious to secure good loans and have been giving attractive rates to those planning improvements. Some large loans of this character have been made in New York at as low as four-and-one-half per cent.

RECORD-BREAKING BUILDING YEAR

As concerns building during the past year, while complete figures are not as yet available, the indication is that total operations will far exceed any former mark that has been set. Some details concerning building in and around New York City are given on another page of this issue, which are astonishing in their revelation of the tremendous amount of business done in this branch of trade alone.

Chicago, the second largest city in the country, announces that the total cost of permits issued by the city building department, estimating the last week in December, were $113,521,350, the largest in the history of the city, exceeding by a considerable margin the phenomenally large total for 1911. That was the banner building year of Chicago when the totals were abnormally swelled by a building boom in the down-town district, due to the anxiety of down-town land owners to take advantage of the old building ordinance, permitting a height of 260 feet as against 200 feet under the present ordinance.

One of the most interesting features of building in Chicago during 1916 was the construction of less flat buildings than during the previous year. There has been a marked increase in the erection of high-grade buildings of all descriptions with record-breaking figures covering factory construction.

What happened in New York and Chicago the past year also took place, for the most part, in a majority of the leading cities of the country, some on a larger scale, showing an even more startling increase over 1915, while others were not so good. It may be safely said that when the total amount of building, for which permits were issued during the past year, is

FOR MOST DURING 1917?

dented Prosperity and Unparalleled Crises, and a Look Into the Number, Opinions As to Various Goals to Which We Should Work

summed up, the figures will surpass the wildest dream of the biggest optimist.

PROSPERITY HAS BEEN KIND TO US

These indications of wealth and prosperity are of more than passing interest to the clay products manufacturer, as has been above stated. They explain, for the most part, why so many brick and tile plants have operated to capacity where they could get sufficient labor, and why a great many are working both night and day. The good condition of building has been helpful to the common-brick maker, as well as the face-brick and hollow-tile producer. The increased demand for drain-tile, which was given a big impetus by the wet summer of 1915, had not spent its strength before it reached 1916, so that the demand for this commodity has been unusually good thruout the country. Educational work, which has been done by various agencies, is waking up the farmer to the advantages to be gained from the use of hollow-tile in the construction of his buildings so that this ware has also enjoyed a big market on the farm during the past twelvemonth. The unprecedented activity in the metallurgical industries has been responsible for putting silica brick manufacturers behind on orders somewhere in the neighborhood of five months, which condition, it is predicted, will soon overtake the producers of fire-clay refractories.

A good business has been reported by paving-brick and sewer-pipe plants, while the condition of the pottery trade as regards demand is abnormal, to say the least. If the last mentioned branch of the industry had been able to secure sufficient labor to operate steadily thruout the year, without the troubles which it has had with its employes, the potters would have made a record which could not have been easily surpassed in years to come.

Manufacturers of terra cotta are about the only ones in the clayworking industry that have any complaint to make. They point out that, owing to the high price of steel, the erection of many skyscrapers has been postponed, which has put quite a crimp in the demand for architectural terra cotta. In spite of this, however, many plants report the past year's business as being entirely satisfactory.

WHAT OF NINETEEN-SEVENTEEN?

It is useless for anyone to claim the gift of prophesy as concerns the twelvemonth that is before us. We know what has taken place during the past year, and we know that we have some faint idea of what conditions will be if they continue the same as during the few closing months of the old year. But no one knows what will happen if the war in Europe is brought to a sudden close and peace is declared. This is the "dark horse" in all forecasts. The "dopesters" say that such and such a thing will happen—if peace is not declared.

We, *as an industry,* have very little foreign trade, therefore, are not particularly interested in what is being done to protect the interests of the manufacturer from cut-price competition after the war, except as business men and citizens of the United States. We are more concerned with domestic troubles, therefore, should look to the possible exigencies which may arise here in America.

For this reason, the following question has been suggested: What should the clay products manufacturer or dealer strive for most during 1917? In other words, what should we do to bring the industry to a higher plane so that it will not suffer from changing conditions as it has in years past? Suggestions have been made by some of those who are engaged in the manufacture and sale of clay products which, if followed, will not only do much to safeguard the industry in troublesome times, but would help to store up a surplus should prosperity continue. Some of the answers which we have received to the above question, follow:

COST KEEPING MOST IMPORTANT

"What should clay products manufacturers strive for most during 1917? In my opinion," says J. L. Buckley, manager of the Davenport (Ia.) office of the Hydraulic-Press Brick Company, "this can be answered in a very few words, and as follows: A uniform cost system in their particular line of manufacture. That is to say, the various divisions should strive for a uniform cost system as affecting their various lines, namely, paving-brick, face-brick, common-brick, sewer-pipe, drain-tile, hollow building blocks, etc.

"In my opinion, once the manufacturers get a uniform cost system, and will begin to exchange and discuss various items of cost among themselves on any particular line of manufacturing, many other improvements will naturally follow.

"There is no question but what a great many manufacturers are selling their products for less than actual

cost, purely on account of their not knowing their exact cost until their year's business is closed.

"I would say, after a uniform cost system (which is by far the most important of any subject), then the manufacturers should strive for better co-operation and working more closely and more harmoniously with their fellow manufacturers."

STRIVE TOWARD PERFECTION

A letter that contains a great deal of food for thought was received from Leon Goodman, vice-president and general manager of the Des Moines (Ia.) Clay Company. Mr. Goodman says:

"What should clay products manufacturers strive for most during 1917? It seems such a simple question, and yet, if one asks oneself the question not once, but over and over again, it becomes more complex. It becomes apparent that the solution involves problems, the real solution of which approaches the ideal rather than the practical.

"It is, in a way, a simple question to answer, that is, as to what we should strive for, but so difficult as to how we can best direct our efforts.

"All manufacturers of clay products, or otherwise, should and can strive to reach that impossible goal termed 'Perfection' or 'Idealism,' knowing full well that tho it can never be attained, it can, if it is constantly before them, be approached; knowing that every ounce of properly directed energy will bring them nearer and nearer, until when the time for their earthly efforts draws to a close, they will have traveled so far along the road 'Success' that its highest peak illuminated by 'Perfection' is within their view.

"But how to strive, how to direct that energy is a big and vital question. One cannot even dwell for a brief moment on factory conditions, bonus systems, fuel, labor problems, or the like—they are merely some of the rugged rocks which must be passed as we go along. They are the details to be surmounted, it is true, but the bigger problems must first be conceived.

"The conception of the bigger, broader ideal must first have the solution; the execution, with its thousand details, must follow. Without conception we cannot have execution; without ideals we cannot reach the full depth of life. 'Success' is the road which we seek—strive for—some being content to travel but a short distance, while others hope to cover its entire length, and so again, the answer to the question 'What to strive for' is self answered.

"Strive constantly and fearlessly to raise your standard; elevate yourself, not mentally alone but morally, physically, and you will be striving for something worth while; something more valuable than wealth alone or petty success to yourself; something which will remain when you have escaped your efforts; something which benefits mankind and crowns your efforts with work well done.

"Undoubtedly the answer is merely general, especially so upon first thought, and yet not wholly general.

"If you successfully strive to have your standards only slightly above the average, or in some cases on a par with the average, some questions, even tho commercial, are answered. Would not this elevation eliminate some of the following despicable, narrow, deplorable tactics?

"Let us be strictly commercial in our expressions. Can you imagine a man of high standards, noble ideals, committing such offenses as reducing prices so that a competitor loses his fair profit; so that he cannot live properly; cannot pay a sufficient wage to his employes; that they in turn can live, not exist; live and provide decently for their families; educate them so that they may become better citizens?

"Can you imagine a man of high ideals, who, if blessed with a broader knowledge, would refuse to give a competitor, a fellow being, the benefit of such knowledge, so that he could better prosper thereby?

"Can you picture a man, a true man, who would advertise in a manner that would benefit himself alone to the detriment of others; who would advertise in a fraudulent, petty way?

"Can anyone, of even average standards, refuse to assist in the development, the building up of organizations and associations, that are doing all good, because such organizations exist anyway and give him the benefit without his help; shirking in every way, because he can shirk, because others are carrying all the burden?

"And you could go on indefinitely. All of the many petty, disagreeable things which tend to take the pleasures from business life would become unknown, eliminated, a thing of the past, and in its place would be more happiness in your business life, in your home life, if we could and would strive, concentrate our every thought, our every action toward an ideal, not with the hope of attainment but with the hope that by such efforts we would become bigger, broader, better in every sense, become more useful; more purposeful; not for intrinsic gain alone but for the betterment of all.

"Let us take up the strife, but let us strive from the beginning to the end of 1917 for a higher, loftier standard of ethics for all manufacturers of clay products."

A TIME OF TESTING IN 1917

"We believe due to the coal and labor scarcity that 1917 is likely to test the best material in the clayworking fraternity," says B. Mifflin Hood, president of the B. Mifflin Hood Brick Company, Atlanta, Ga., "and in order to succeed, it will be necessary to make the most of everything, especially the use of a cost system for manufacturing so that intelligent prices can be placed for the sale of our wares.

"A co-operative system of business such as would boost the clay products industry is very essential. This has been demonstrated by the manufacturers of cement.

"It is also necessary to enlarge and cultivate new fields for the use of burned clay products. If more superintendents and manufacturers could attend such short courses during mid-winter, as are held by the Ceramic Engineering Department of institutes like the University of Illinois, where theory can be mixed with practice, at least to the extent of stimulating thinking, better results would be obtained and many of us would get out of the old ruts and constantly strive to improve our products."

SEES LABOR AS GREATEST PROBLEM

"In reply to yours of December 20th," writes J. W. Robb, secretary and manager of the Clinton (Ind.) Paving Brick Company, "wish to say that it appears to me the greatest problem clayworkers will encounter for next year will be to meet the demands of labor and get a corresponding ad-

vance for the material that we manufacture. Personally, I do not think that there is any other business so hazardous as the brick business which is conducted on such small margins of profit—if we have margins of profit at all.

"The writer tried out the bonus proposition several years ago, but found it very unsatisfactory, as the men did not seem to appreciate the fact that it was necessary to be permanent at their places before the bonus system was effective and were constantly making excuses—which, in their opinion, seem to be valid—why they should be paid a bonus when they were absent as much as one or two days each pay."

STEADY MARKET OUR BIGGEST ITEM

No symposium on any subject of importance to the clay products manufacturer would be complete, we believe, without some word from Dr. G. C. Mars, department of service, Hydraulic-Press Brick Company, St. Louis. Dr. Mars writes under a recent date:

"I supposed that the meeting at French Lick practically settled the question about aims for 1917, at least so far as face-brick people are concerned. I have not seen any reports of the meeting, and not having been out of the house for the past two weeks, have heard nothing. One anticipated feature of the meeting I certainly heartily approved, viz., the endeavor to stabilize, as far as possible, the selling end of the brick business. Of course, when the demand is great there is little trouble on prices but, as you know, the minute business slacks, the evil of price cutting shows its poisonous head. I take it that something was done at the meeting to steady brick dealers and make them feel a greater sense of responsibility in the matter of prices. If this can be carried out, I should regard it as a most desirable aim for the year.

"What clay products manufacturers in general should do, I'm sure I don't know, outside of what all manufacturers should do—put more brains and conscience into their business. Our whole industrial system is exceedingly chaotic and irrational, involving tremendous waste, but as only some sort of cosmic revolution could change the present conditions, it is wisest to make the best of them. And so far as I see, there is going on a general education of improvement. Men are waking up to see that they must keep an accurate and complete account of costs; that they must develop the human resources latent in their employes; that they must steady the market by consistent sales policies, and that they must push their wares by consistent advertising.

"So far as clayworkers are concerned, I suppose it is safe to say of them, as of all other manufacturers, that some of them are bone heads and really don't know what they are doing; some of them are rogues and use all of their wits to beat everybody, and that some of them are simply plain fools all around. But I believe the great majority of them are intelligent and honest and are waking up more and more to scientific methods of manufacturing and merchandising. You, as an influential organ in the clay field, are obligated to keep us posted on all the advances and constantly exhort us to a diligent application of them.

"Our whole situation could be greatly improved if the Sherman law permitted reasonable combinations under legal control, but that sacrosanct, stupid instrument prevents the only sensible, common sense way of large business combination. Of course, men shouldn't be allowed uncontrolled to form monopolies, but all the business brains and conscience in one great industry ought to be encouraged to form co-operative combinations under the aegis of law. The national bureau of commerce ought to be competent to determine just how far and to what extent such combinations might go and then stamp them with legal approval, until they are shown to be transgressing their rights.

"I fear this is not much to the point of your question, but the field is really so large that, in order to get a clear answer, the problem needs to be pretty narrowly defined."

MECHANICAL EFFICIENCY NEEDED

According to H. R. Straight, superintendent of the Adel (Ia.) Clay Products Company, we should strive for greater mechanical efficiency in our plants. "Some of the machines that we have been using," Mr. Straight maintains, have not been greatly refined since they were made. If the automobile industry would put up with the mechanical arrangements that the clayworking industry has been using, it would have been broken up before this.

"We should strive to make it easier for a man to accomplish more. There is no reason why we should not be using as high a class of labor as any industry. It is simply a matter of refining our processes.

"We should strive to increase our efficiency in burning our product. The heat balance of the kiln will show that only a small amount of the heat is actually used to increase the temperature of the ware burned.

"Last, but not least, we should strive to secure a better return on our investment by knowing what the material costs us and charging a good margin of profit. In order to do this we must know our neighbors, have confidence in them and apply the Golden Rule to every one."

URGES PLENTY OF ADVERTISING

"I will make the following as my suggestions," writes W. H. Fyffe Parry, a dealer of Gary, Ind.:

"First, plenty of advertising. Every manufacturer should set aside a certain amount for each thousand brick manufactured and use this to advertise and boost brick.

"Second, do not try to see how many brick you can make, but how good you can make what you do make.

"Third, make high-grade brick and you will have less trouble in getting good prices.

"Fourth, a bonus system may stabilize the labor situation. It is worth trying out, at least.

"Fifth, I believe the high cost of fuel is only temporary, and has been an object lesson as to the value of publicity.

"Sixth, brick manufacturers should use the coal dealers' motto: 'Get the Money While the Getting is Good.'"

ADVOCATES FREQUENT MEETINGS

In a letter from M. L. King, secretary of the Permanent Buildings Society, he gives us some very interesting views on co-operation, as follows:

"It has been my observation that one of the largest, easiest and most pleasureable opportunities for improvement is in getting together.

"The ordinary annual get together proposition is all right, but like the annual bath, it only helps for about a week.

"Since about the middle of the summer all of the clay products manufacturers in the vicinity of Des Moines have been lunching together on Wednesday noon. These meetings have been well attended. They have

been profitable, and incidentally, are favored by the local ministerial association, as they eliminate the profanity that all of the local competitors have in the past expended upon each other.

"Since early in the summer meetings of manufacturers in the southeastern part of Iowa and western part of Illinois have been held at convenient points every fourth Thursday. The attendance at these meetings has ranged from one to two dozen and even the one, two or three-kiln plant men have found that a day off has been much more profitable than the ordinary day's business.

"The coming year will find monthly, and even weekly, meetings in the various parts of this and adjoining states greatly increased at a very great profit to the manufacturers.

"These frequent meetings are convincing the manufacturer that his competitor is almost as intelligent, public spirited and reputable in general, as he is himself.

"The kernel to be found in all of this chaff is co-operation, persistent co-operation, with even a little patience and charity mixed with it.

"Another thing which should be borne in mind more definitely than ever before is that the largest market for clay products of every kind, from paving-brick to jugs and pottery, is found on the farms and in the smaller towns. It's a long way between cities."

IS STRONG FOR OPEN PRICE

"In answering your query: 'What should clay products manufacturers strive for most during 1917?' unhesitatingly I answer, the open price," writes N. P. O'Neal of the Hope (Ark.) Brick Works. "With an open price brickmakers learn to have respect for each other. Without it, we are every one under suspicion, and suspicion leads to distrust and discord, to say nothing of other evils. No one factory can maintain an open price during dull seasons and do any good, while we know it to be a fact that other industries maintain such a system and not only have less friction as between members, but tide over dull seasons with heads up and ready for a better market at profitable prices. The brickmakers ought to do it."

Thank You!

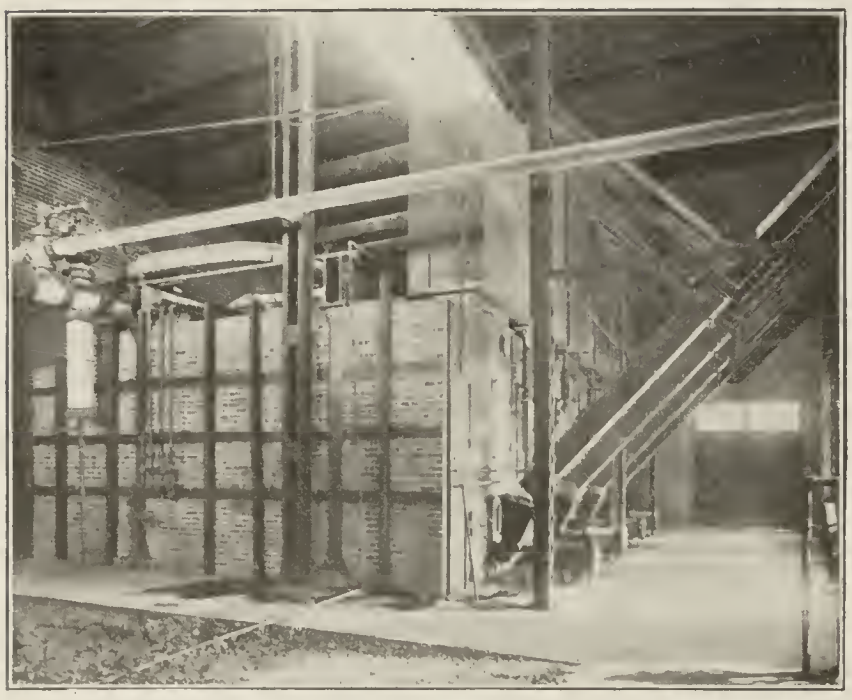
We have been contemplating the acknowledgement of the many good wishes expressed in a shower of very handsome Christmas cards from a large number of friends in the industry. Owing to the Herculean nature of the task, however, we have given up in despair, but wish to take this opportunity of expressing our sincere appreciation for the kind remembrances from all.

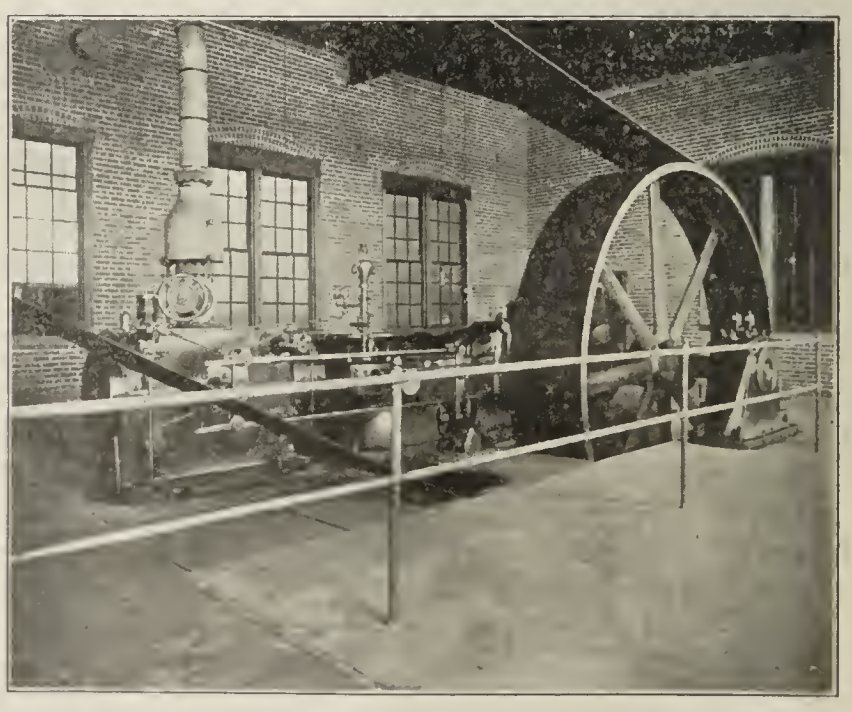
"Brick and Clay Record" wishes particularly to thank the Ironclay Brick Company, Columbus, Ohio, for the extremely neat card which it sent us, expressing in a very clever manner its wish for us during the coming twelvemonth; also that from the General Fireproofing Company of Youngstown, Ohio; the A. P. Green Fire Brick Company, Mexico, Mo.; the Sterling Brick Company, Olean, N. Y.; the Claycraft Brick Company, Mr. E. C. Howard, Columbus, Ohio; and the Fallston Fire Clay Company of Pittsburgh, Pa.

We are all very gratified at being remembered by Mr. Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, also Mr. and Mrs. H. H. Macdonald and Mr. and Mrs. A. F. Greaves-Walker, as well as Mr. R. D. T. Hollowell, secretary of the American Face Brick Association. In addition, it is with deep appreciation and genuine satisfaction that we thank Mr. G. D. Crain, Jr., Mr. and Mrs. W. F. Schaphorst and Lynne M. Lamm for their kind remembrance of us at this joyous holiday season.

According to a report issued recently by the Department of Investigation and Statistics of the Ohio Industrial Commission, the manufacture of pottery, terra cotta and fire-clay products is one of the most important industries of the "Buckeye State." The report covers the calendar year of 1915 and shows that $12,445,296 was paid out in wages by concerns manufacturing clay products.

DETROIT BRICK FACTORY *has an* EFFICIENT POWER PLANT





The Above Photographs, Taken at the Factory of the Mercier-Bryan-Larkins Brick Company, Detroit, Mich., Should Form an Object Lesson in Good Power Plant Management. Mr.Bryan States That, While the Company Has No Accurate Data Showing the Saving in Fuel and Labor Effected by the Use of Automatic Stokers Such as Are Shown in the Left Hand Picture, He Says That the Peace of Mind Resulting from Having Your Plant Equipped with These Stokers, Thereby Eliminating Labor Troubles From This Department, at Least, is Worth a Great Deal. The Photograph on the Right, Which Shows the Large Engine Used by the Company, Reveals an Immaculate Engine Room.

BRIEF HISTORICAL SKETCH *of* ARCHITECTURAL TERRA COTTA

In This—The First of a Series of Articles by an Able Writer—the Story of Terra Cotta is Related in Concrete Form

By Herman A. Plusch, M. S., Cr. E.

¶**Editor's Note:** Owing to the fact that literature dealing with the manufacture and use of architectural terra cotta is rather limited, "Brick and Clay Record" takes more than ordinary pleasure in presenting below the first of a comprehensive series of articles on these subjects.

¶Our gratification is increased, however, in being able to secure so eminent an authority to write these articles on a very interesting branch of the clayworking industry.

¶Mr. Plusch was born at Catskill, N. Y., in 1881, graduating from the Catskill High School in 1900. He entered Rutgers College, New Brunswick, N. J., in 1900, took a ceramics course and graduated with a Bachelor of Science degree in 1904.

¶He assisted Prof. C. W. Parmelee—director of the ceramics department at Rutgers—after graduation, until April 1905, when he went with the Excelsior Terra Cotta Company, Rocky Hill, N. J., as ceramic chemist.

¶Remained with this concern until 1908 when the Atlantic Terra Cotta organization was effected and was transferred to Tottenville, N. Y., at Plant No. 1 of that company. In the fall of 1908, Mr. Plusch was made chief chemist of the Atlantic Terra Cotta Company, operating five plants.

¶Resigned in February, 1916, to take up ceramic consulting work. At present is research engineer for the Abrasive Company of Philadelphia and consulting ceramic chemist and engineer.

¶Mr. Plusch received a master degree in science in 1908 and a ceramic engineer's degree in 1916, both at Rutgers College.

IN OUTLINING a brief historical sketch of architectural terra cotta, we shall not begin with a B. C. dissertation on the history of this material, but shall leave that part of it for archaeological discussions. We cannot, however, fail to begin with the Della Robbias of Italy, who during the fifteenth century brought terra cotta to a very advanced stage. The Della Robbias were originally artists, and craftsmen as well, doing their initial work in marble. Then, in order to produce more work, they resorted to bronze, and finally, they fired the clay from which they formerly took their models. Then the blue of the sky and the pure white tin enamel, representing purity, were combined with touches of green, purple, and yellow to portray in beautifully modeled and colored form, many familiar ecclesiastical subjects.

The Della Robbias were the pioneers in large model polychrome terra cotta work and their products have been much copied. However, the same feeling and motives, that is, the ability being centered in one or two individuals that characterized these people, is not in accordance with our modern methods.

A number of quite successful Della Robbia reproductions are to be seen in this country, but the general mechanical perfection required and produced in present-day terra cotta detracts somewhat from the charm of the originals which have freer and easier lines.

MODERN TERRA COTTA DEVELOPED IN ENGLAND

Terra cotta, as we know it today and speak of it generally, was developed along modern lines in England. There is a terra cotta tombstone, weighing about three hundred pounds, in an old cemetery at Nottingham, dated 1714. The piece is still in a good state of preservation and its date represents, perhaps, about the time terra cotta was being used for building purposes in Britain.

The old English influence is still to be seen in our terra cotta plants. Many of the older so-called "practical" terra cotta men have received their early training at Doulton's and, in fact, some of the younger draftsmen who have had training "on the other side" are to be found in many of the terra cotta plants in this country. The English training of terra cotta draftsmen seems to be more thoro than that received in this country.

PERTH AMBOY—THE AMERICAN BIRTHPLACE

In 1877 terra cotta was first manufactured in this country at Perth Amboy, N. J., but the terra cotta made then was not as we now know it. All of it was red. Then came buff and other slip or natural clay colors, but for many years terra cotta color meant red clay color; to this day, many people think terra cotta is a color only, and that, a burned clay red.

Terra cotta in the earlier days in this country had quite a struggle against stone, as the first mentioned material was considered a cheap substitute for the latter. This idea and notion is now well nigh obsolete and terra cotta today means a building material of any color, any surface and made in almost any conceivable design and shape.

One of the original claims made in favor of stone as a building material was the fact that it admitted of a greater range of color selection, but with early experimenting by the old, practical men, followed by the advent of ceramists into the field, most terra cotta concerns are now advertising any color, or combination of colors, surfaces, and so forth.

Most of the thirty odd terra cotta companies, scattered from the Atlantic to the Pacific in this country, can trace their ancestry to Perth Amboy.

SCIENTIFIC MEN ENTER THE INDUSTRY

About the year 1900 ceramists from our American colleges and universities began to enter the terra cotta field. It was a hard pull for most of these pioneer scientific men, as encouragement from the old-line department heads was none too prevalent. But this phase of the situation has changed and the young technical men in the terra cotta industry are, for the most part, making good. Recently, in a talk with the head of one of the large Eastern terra cotta concerns, the author was told that the technical men in one particular plant constituted one of that plant's best assets.

So, terra cotta broke away from red, got into buff, salmon and gradually into limestones, brownstones, then glazes in plaint white and green, lustrous at first and sand blasted when a matt was wanted. Finally, the matt was developed so that it came from the kiln as such, and then colors came along, and the most recent developments are the granite effects, produced by a combination of surface treatment and slip or glaze applications.

Polychrome and faience effects are becoming very elaborate and apparently complicated. When one sees from five to seven colors come from a kiln on one piece and produced in one fire (body and glaze maturing at the same heat), he must realize the extent of the development made in the past fifteen years along this line alone.

TERRA COTTA SOCIETY A GREAT ACHIEVEMENT

Perhaps the greatest achievement in the recent history of the terra cotta industry has been the formation of the National Terra Cotta Society a little more than two years ago. Here old animosities were buried, secretive methods to some extent were made the subjects of more general discussion and unintelligent competition was largely eliminated. The foreword of the excellent edition of "Architectural Terra Cotta—Standard Construction," recently published by the Society, sums up in a brief manner the history of terra cotta and the purpose of this recent organization. We quote from it as follows:

BRIEF HISTORY OF TERRA COTTA BY THE SOCIETY

"The use of burned clay ware in the form of brick, tile or pottery has been uninterrupted and universal from the dawn of civilization to the present day. The use of burned clay in the form of architectural terra cotta has been more sporadic and local. Its unequal merits as a building material were fully appreciated by the Greeks and Tuscans who, two thousand years ago, used it to face the perishable stone in some of their temples. Centuries passed during which the art of making architectural terra cotta seems to have been confined to short periods and to a few localities. In modern times the creator of the skyscraper—the progressive American architect—working with the responsive and enterprising manufacturer, rediscovered, improved and gave to an appreciative public this most durable and versatile of all building materials.

"Today it is a matter of common knowledge among architects that modern terra cotta possesses many superior qualities; that it may be economically made in an endless variety of forms and colors; that, if well made, properly set and carefully pointed, it is permanently enduring and resists successfully the ravages of water and fire; that it combines lightness with strength, and beauty with usefulness.

"The characteristics peculiar to architectural terra cotta and the extreme difficulties encountered in the vagaries of the clay before it is finally conquered and forever fixed by fire, can hardly be understood by those who have not engaged in its manufacture. Therefore, harmonious co-operation between designers and manufacturers is imperative in order to produce the best results."



HERMAN A. PLUSCH

BRIGHT FUTURE AHEAD FOR THIS MATERIAL

All pushing as well as pulling together to advertise, exploit and show the merits of a building material which is unequaled, and all co-operating—some day, we hope—along the lines of technical development and the solution of problems common to all manufacturers, should make terra cotta a still better material than it now is.

The advantages of using terra cotta, recent technical developments in the construction and manufacture of the ware, bodies, glazes, pressing, spraying, firing, and so forth, will be discussed in general and in proper sequence in articles to be published later.

(*To be Continued.*)

Barkwill-Farr Company Doing a Worthy Work

Effective work on the part of the Barkwill-Farr Company, Cleveland Ohio, is expected to make for a big representation of Ohio clay products manufacturing interests at the Complete Building Show to be held at the Grand Central Palace, New York City, March 5th to 11th. The activities of the Cleveland firm above mentioned are not confined to lining up Ohio interests, however, but letters are being sent to plants in all parts of the United States.

Salesmanager Robert C. Mitchell points out that six lumber associations are already well represented, and that a big showing will be made by cement and metal lath concerns. All building materials will have a good display except brick, it seems.

"We want the best showing of clay products at this show," says Mr. Mitchell, "and unless the clay products manufacturers wake up the lumber people will 'steal third' and 'bring home' the winning 'run.' Already half the space has been sold."

Contributions are being asked in the letters sent out by the Barkwill-Farr Company. These contributions range from one to five dollars, and will be deposited with the Society Advocating Fire Elimination, Ralph P. Stoddard, secretary, acting as treasurer. Mr. Stoddard will appoint a committee of five, of which he will be one, to arrange for the clay products exhibit.

The thought which has governed Mr. Mitchell in the step above described, is that very few clay products manufacturers will be willing, for the sake of not more than five dollars on their own part, to see March 5th arrive without a proper representation being provided for the best of all building materials at the coming show in New York.

NEW YORK CLOSES BEST YEAR
WITH BRIGHT PROSPECTS FOR 1917

Advent of the New Year Sees Price of Hudson River Commons at Close to Ten Dollars, With a Good Demand Ahead

AS THIS IS BEING WRITTEN, old 1916 is breathing its last, and ere what is written shall have seen the light of day, another year will have been born. And what a year has 1916 been! War and rumors of war, strikes and rumors of strikes, fights and rumors of fights, politics and too much politics, and then peace, and yes, rumors of peace! And withal prosperity! Call it what you will, summed up in dollars and cents, as well as dollars and sense, it has been a mighty lively and an interesting prosperity. And the big thing about it is that it has been a prosperity well distributed. The last days of 1916 will go down with two words in the English language standing out above all others. Those words are, first, "bonus," and second, "peace."

NINETEEN-SIXTEEN A GREAT BONUS YEAR

In old New York, as elsewhere in this land, the talk of peace has been the great topic, but it had nothing on that other word, "bonus." Everybody—builder, butcher, baker, the candle-stick maker, the banks, the city administrations, the shops, and public utilities—have been handing out bonuses. Why, if you didn't get a bonus this year you were simply not in style.

One may ask what has this to do with brick and building? It has all to do with it. As go the other things in life, so goes building. Without bonuses and money, there would be precious little building, and without building, where would brick come in?

LABOR IN THE LIMELIGHT

New York is proud of the past year as regards building and the building record. Never has there been a year when the laborer was in his element as he has been this year. Truly, everybody just simply had to take note that the laborer was worthy of his hire, and what is more, he got all he was worth and maybe, in some cases, more than he was worth. President Wilson and his eight-hour law might not have suited everybody. No doubt it didn't and will not, but he and his eight-hour law for trainmen were mere drops in the bucket of labor agitation that has spread over this vast country. In all walks Mr. Laborer has been king pin, and talk as you please, the high cost of living has certainly nothing on the high cost of building, and it is Mr. Laborer, more than any one of many other factors, who has been the "colored gentleman in the brick pile." All that goes into a house costs more to handle than it did a year ago, and if you trace the reason to its lair, you will find lurking near—labor.

But, fortunately, labor, prosperity and the high cost of building have gone hand in hand and money is not scarce. Somehow the great American public is reconciled, apparently, to the readjustment of prices and everybody is imbued with the optimistic spirit so that many are saying: "The country is all right." "Standards are changing and what do we care if prices are higher so long as business is good and getting better, and money is plentiful and sufficient to meet the prices."

SNOW PREVENTS TEN DOLLAR CHRISTMAS BRICK

Two big things came down upon the largest city in the world during the last part of 1916—the German peace proposal and a twelve-inch blanket of snow, the most severe storm for December in New York since 1891. But it was the Christmas season anyway, and New York took both gracefully, except in Wall Street and in the brick market.

In Wall Street the bears and the bulls had it hot and heavy and a few people made millions while a few had their fingers burned. In the brick market the snow sent the prices down a trifle and prevented the expected ten-dollar brick for Christmas. But 1916 has been such an extraordinary year that things like these are trifles.

NEW YORK HAS GREATEST BUILDING YEAR

A look backward shows a new high record for builders in the metropolitan district which includes Manhattan, all Greater New York, Westchester, Nassau and Suffolk counties, and a small portion of New Jersey. Builders in this district have expended $257,120,000 during the year. Altho falling below 1915 for flats and dwellings, the great volume of miscellaneous construction raised the expenditures twenty per cent. above the $206,766,000 of the preceding year. In 1914 the total was $166,000,000, and, in 1913, $159,000,000. Now anybody who can do simple arithmetic ought to have no trouble in ascertaining very quickly what 1916 has been and means to the East, and to builders and the manufacturers of clay products.

These figures cover outlays for new buildings and for alterations. The total for new buildings alone was $225,700,000, leaving $31,420,000 for alterations, of which Manhattan leads with $18,450,000. These may be big figures, but New York talks in big figures, lives in big figures and is going to keep right on in big figure style if one is to judge from conditions existing today and from the feeling among the big men in the building business. Manhattan, which is the narrow strip beginning at the battery and running to the Harlem river, rolled up a building bill of $130,200,000, of which new structures have taken up $111,750,000 in plans filed.

This, mind you, is not for the complete year, but up to December 22nd. Not all these operations have been started, but so much the better in the estimation of some of the leading contractors, for it means a nest egg for 1917.

TWO HUNDRED THOUSAND AVERAGE BUILDING COST

More than half of the total outlay for Manhattan has gone into the midtown section, the Forty-second street axis getting the main share. Nearly $40,000,000 is involved in new hotels. Manhattan projects have called for only 570 separate structures, showing an average

close to $200,000. This in itself is a new high record, around twenty-five per cent. of it being attributed to the rising costs of labor and materials. As the outlay involved for flats was $25,700,000, and for dwellings $2,650,000, the amount involved in other buildings has been $83,400,000. To this must be added nearly all of the $18,450,000 spent in alterations as the changes were chiefly in preparation of larger business facilities. This raises the total of such construction above $100,000,000. Taken on the whole, New York has had exactly what folks wished each other one year ago: "A Happy Year."

LOOKS LIKE ANOTHER "HAPPY NEW YEAR"

And now, as we look back over the twelve months that have gone, and as we finish taking inventory of the good, the bad and the indifferent, and find the good far and away head of all else, we close the last pages of 1916 and open to page one of 1917. Without venturing too far into prophecy and with no desire to raise hopes too high, as we look at things as they are, we must needs reflect the impressions held by those who have their hands on the pulse of the industry. What are those impressions? What is there ahead, in the future? Watchmen, what of the night? To express it in cold, unvarnished facts, and unadulterated truth, there seems to be no ground for anybody expecting anything else but another "Happy New Year."

Suppose building material prices have advanced! Suppose labor is away up in the air and mighty independent! Was demand ever any better at this season of the year for brick and other clay building materials? The answer is found in any of the price lists. What with "nominal quotations" and "no quotations," and "no stock at any price" and "goods sold way ahead," one must needs admit that things are right lively. It is a fact that dealers have been buying, and at enormously high prices, material for as far ahead as the third quarter of 1917. What would that indicate? Surely, it wouldn't make anybody think that many people are waiting for prices to drop before pushing ahead with building operations.

PROSPECTS BRIGHT FOR NINETEEN-SEVENTEEN

Yes, architects and builders see a bright outlook for the building business of 1917. Nobody is predicting that it will be a bigger year than 1916. Neither did anyone in 1915 predict that 1916 would turn out the way it did. Plenty of people there were who thought the war would have us "tied up into knots." The one item of uncompleted 1916 work will keep builders as busy as they can be for months to come and the new subways and fifty-million-dollar building projects in the Bronx will be helpful to the general situation. The rest of the country will please take notice that New York is not worrying, nor yet, is New York promising what 1917 will be in the twelve months to come, but old Father Knickerbocker is perfectly contented. Nineteen-sixteen has been good, and Nineteen-seventeen is a healthy youngster with much to gain and little to lose.

* * *

Write Your Congressman and Prevent a Colossal Political Blunder

After two days consideration of a measure that will tax those people of the United States who are progressive and ambitious enough to subscribe for national periodicals, the sum of $17,000,000, the House Committee on Post Offices voted to include as a rider on the Post Office appropriation bill, an amendment that would place the mailing of all second-class matter upon a zone basis, similar to that which governs the parcel post at the present time. The rider, which is fathered by Representative Randall of California, proposes to substitute for the present flat rate of one cent per pound, a rate based upon the number of miles which the magazine, newspaper or periodical travels, that would range from a charge of one cent per pound within a radius of three hundred miles of the publishing point, to the extortionate sum of six cents a pound for matter mailed 1,800 miles and over.

UNITY WOULD BE SUPPLANTED BY SECTIONALISM

But little reflection is necessary to foresee the far-reaching, evil results that would inevitably follow the passage of this amendment. The development of national unity in thought, in industry, in commerce, and in government is dependent to a great extent upon the strength of national publications. Any measure that would tend to restrict the publication of these mediums of knowledge, such as the proposed amendment, is a step towards the encouragement of sectionalism, and portends the death of American democracy. Realization of this fact moved our forefathers many years ago, *when transportation costs really depended upon the distance covered,* when the stage coach and pony express were an important factor in the distribution of mail, to cut in half the postal revenue upon these publications, despite the heavy deficits that confronted the Post Office at the end of each year.

Just as the distribution of these national magazines in every nook and corner of the nation has proved the most powerful influence in the abolition of sectional barriers which has been so happily accomplished in the past fifty years, so have the trade and technical magazines been indissolubly coupled with the development of American industries. The exchange of knowledge thru their columns has undoubtedly played a star part in the development of industrial America.

PRINCIPLES OF DEMOCRACY THREATENED

And now, when for several years the annual returns of the Post Office have displayed handsome surpluses, aspiring, but poorly informed and unappreciative politicians are attempting to jam a measure thru congress that will undermine the very principles upon which the American government rests—unity and solidity.

In substance, the proposed measure is a tax of $17,000,000 each year upon the people of the United States, who are attempting to increase their store of knowledge by reading periodicals published more than three hundred miles from their particular city. It proposes that a tax be levied upon you every time the mailman brings a copy of "Brick and Clay Record" to your desk—unless you are within three hundred miles from Chicago. Because you were so exceedingly injudicious as to pick a point in excess of 1,800 miles from the publishing point of your favorite paper, in which to reside you will be the party to a fine of what may amount to from two to three dollars a year.

WRITE YOUR CONGRESSMAN

Of necessity, this charge must fall upon the readers of nationally circulated magazines, rather than upon the publishers, who at the present time are burdened with rapidly rising publishing costs. Were this not the case, the publication of many of those magazines which have played important parts in the development of American thought and industry would cease, and the intelligence of the American people would be the sufferer.

In view of these facts, we ask that you write your congressman today, insisting upon the divorce of the Randall amendment from the Post Office bill.

TESTING CLAY PROPERTIES

Valuable Advice on a Subject Too Often Lightly Regarded, Which May Be the Means of Preserving Your Fortune at Some Future Date

By A. F. Greaves-Walker

(*Continued from the December 19th Issue.*)

TO PROPERLY TEST a property it should be laid out in squares similar to a checker board (Fig. 7). The side of each square should be 100, 200 or 300 feet. Each intersection should be numbered and at these points the drill holes should be located. It is, of course, only necessary to drill test holes at those intersections which come above the grade level or, if the bottom of the bed or deposit is known to come some distace up the hill sides, above that point. When the pit is to be opened below grade and the property is flat, a drill hole should be located at each intersection.

The kind of drill to use for the tests depends entirely upon the nature of the deposit. Soft shales or clays can be drilled with a hand auger drill, but where gravel seams or strata of stone occur in the formation, it will not work. A well drill will go thru any formation but it has the disadvantage of churning up the material in the hole and it is, therefore, not altogether a safe instrument to use unless an expert is on the job to watch the results. The diamond drill is the best instrument for this kind of work but its use usually means a heavy expense.

HAND AUGER DRILL

When such a drill can be used, testing becomes a simple operation. The equipment costs very little. It merely consists of a wood auger of not too great a pitch about a foot long and 1½ to 1¾ inches in diameter. To this is welded a ½-inch steel rod about five feet long, the upper end of which is threaded with a pipe thread. A handle is provided that can be attached to this rod and which provides a

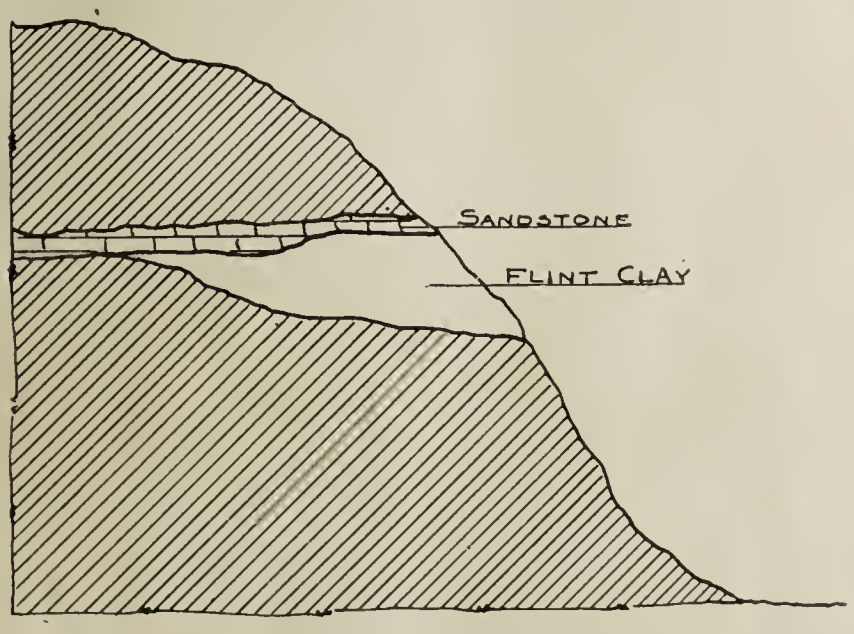


Fig. 6—Section of Hill Showing Remainder of Lense of Flint Clay. (Should be Studied in Connection with First Five Figures Appearing in the December 19th, 1916, Issue)

good leverage. A sufficient number of sections of half-inch pipe are provided to lengthen out the drill as it goes down. These ections should be about four feet long. Each time the drill is run down a few inches it is pulled up and the borings which come with it are examined and preserved for further tests. If the holes are very deep it is necessary to provide some means of pulling out the long drill. A simple three-leg set-up over the hole with a block and tackle at the top will answer this purpose. Two men are required on the drill, as it becomes very difficult to turn it after it gets down a few feet.

WELL DRILL

If a well drill is used it is customary to employ some drilling company to do the work. In ordinary shales and clays such a drill will go down very fast. By its rate of progress the hardness of the various starta can easily be judged by an engineer but, as mentioned above, on account of the condition of the borings as they are lifted out, an inexperienced man could determine very little. As the borings come from the holes in a soft wet condition it is necessary to dry them in preparation for burning and drying tests. Of all the methods this one is probably the poorest, altho on a big job it will more than likely prove the cheapest.

DIAMOND DRILL

Diamond drilling is very expensive but the results obtained are really so superior to all other methods that a cautious company cannot afford to use any other. By this method a core is obtained which gives a complete story of the formation drilled thru. Strata of stone, coal and any changes in the clay or shale are shown exactly as they occur. The cores when preserved serve to show the management exactly what they may expect to encounter and allows them to prepare for contingencies long before they have to be met.

Diamond drilling is done by companies organized for the purpose and the drills are in the hands of experts. The work is usually done at so much per foot, the price varying according to the material to be drilled thru.

From two to five thousand dollars spent in diamond drilling may seem like a large sum of money, but it is a small percentage of the cost of a modern plant whose success depends absolutely upon the raw material. Considering the number of companies that have been ruined or have in the end paid four or five times this amount in order to get out of difficulties caused by going into things blindly, it would seem to be the better part of wisdom to spend the money in the beginning, even tho the sum seems large. The item of removing overburden alone may amount to five or six thousand dollars a year and a company taxed with this expense would have probably selected a site elsewhere could they have seen beforehand what they were going up against.

Another drill, a sort of little brother to the diamond drill produces the same results, but is slower. Instead of using diamonds for the cutting edge, the bit is of tool steel with the cutting edge like a saw. This drill can be operated by hand or a gasoline engine and can be purchased for a few hundred dollars. The cores produced are very perfect but do not come out in such long sections. This, however, is not detrimental.

PRACTICAL TESTS NEXT STEP IN PROCEDURE

Having drilled the property thoroly, it is then necessary to secure sufficient material with which to make practical tests. If the cores or material from the drill holes show the deposit to be fairly uniform thruout, this is a simple matter. It is then only necessary to sink a pit thru the weathered portion on the surface or run an "open-cut" into the hillside and secure a sufficient quantity of the unweathered material to make a number of tests on the kind of equipment it is proposed to use. This quantity may vary from five barrels to a carload, according to the scope of the tests, the cautiousness of the company and the people making the tests. *It is utterly useless and a waste of time and money to attempt to get a test from a few pounds of material, as is sometimes done*, and the man who is willing to make a report on such a test and allow money to be staked upon such a report is a man to be avoided.

In order that a test may approach as near actual working conditions as possible, it should be made on full size equipment and in the types of ware it is expected to manufacture. It should be dried as nearly as possible under working conditions. The burning of the samples can safely be done in a test kiln, providing of course, the tests are in the hands of a competent man.

CHECK DRILLINGS AGAINST WORKING SAMPLE

The material from the drill holes should be checked against the working sample in order to be certain that a variation in the deposit that would affect the working and other qualities, does not exist. Such check tests can be made in several ways. Chemical analysis will show up any decided variation and, coupled with a briquette test, in which the drying, shrinkage, burning and color qualities can be noted and compared, will provide data upon which a decision can be made.

When a formation is encountered which shows variations at different depths it is absolutely necessary that a test be made on each of the different materials. To neglect to do this may have serious consequences for it has been the encountering of variations in the bank or pit, *after a company has started operations*, that has caused so much trouble in the past. Along the Atlantic coast and in the mountainous regions of the West, from five to ten different kinds of clay may be encountered in a depth of forty or fifty feet.

Some exceptions can be made in the case of refractory fireclay deposits. These clays are valuable according to the degree of their refractoriness. Melting tests can be made from the cores and, there is hardly any necessity for other tests, altho they may be made as a precaution. In dealing with these clays, the drill holes should be placed very close together as a deposit may vary greatly in refractoriness, and instead of being continuous over a large area may consist of a number of small deposits, with barren areas between them.

COMPETENT ENGINEER SHOULD SUPERVISE TESTING

It is a safe and wise plan to have the entire work of testing the property and material done under the supervision of a competent engineer. *It is a job for an expert and no one else*, for no matter how thoroly the work of testing may be done, the report on the results will be of no value unless the man who makes it knows his business.

Testing of clays or shales should never be left to people who are interested in furnishing the plant equipment. No matter how conscientious they may be, in the nature of the case, it is absolutely impossible for them to be unbiased. More often than not they are not to blame for misleading reports, as they often have no means of knowing the history of the samples sent them. The methods of testing used are also open to criticism. Material which will not make "nice appearing" ware when first run thru a machine is run over and over again until the desired results are obtained. This is not a practical test, for even a shale or clay with poor working qualities can be made to produce good ware, if it is worked over enough times.

A little more thought and care given to this department of the industry will save many dollars to investors, and it will place clayworking in a much better light with those financial interests whose assistance is becoming more necessary every year, in order that it may keep pace with the other great industries in whose ranks it properly belongs.

* * *

The failure of natural gas in Kansas and Missouri has made it necessary for clay plants in these states which formerly used gas as a fuel to resort to coal or oil. The number of plants in Kansas which have been compelled to make the change during the past year is indeed large, most of the plants operating in that state now using one of the two last mentioned fuels. Those who have made the change to coal very recently have found it difficult to secure sufficient supplies.

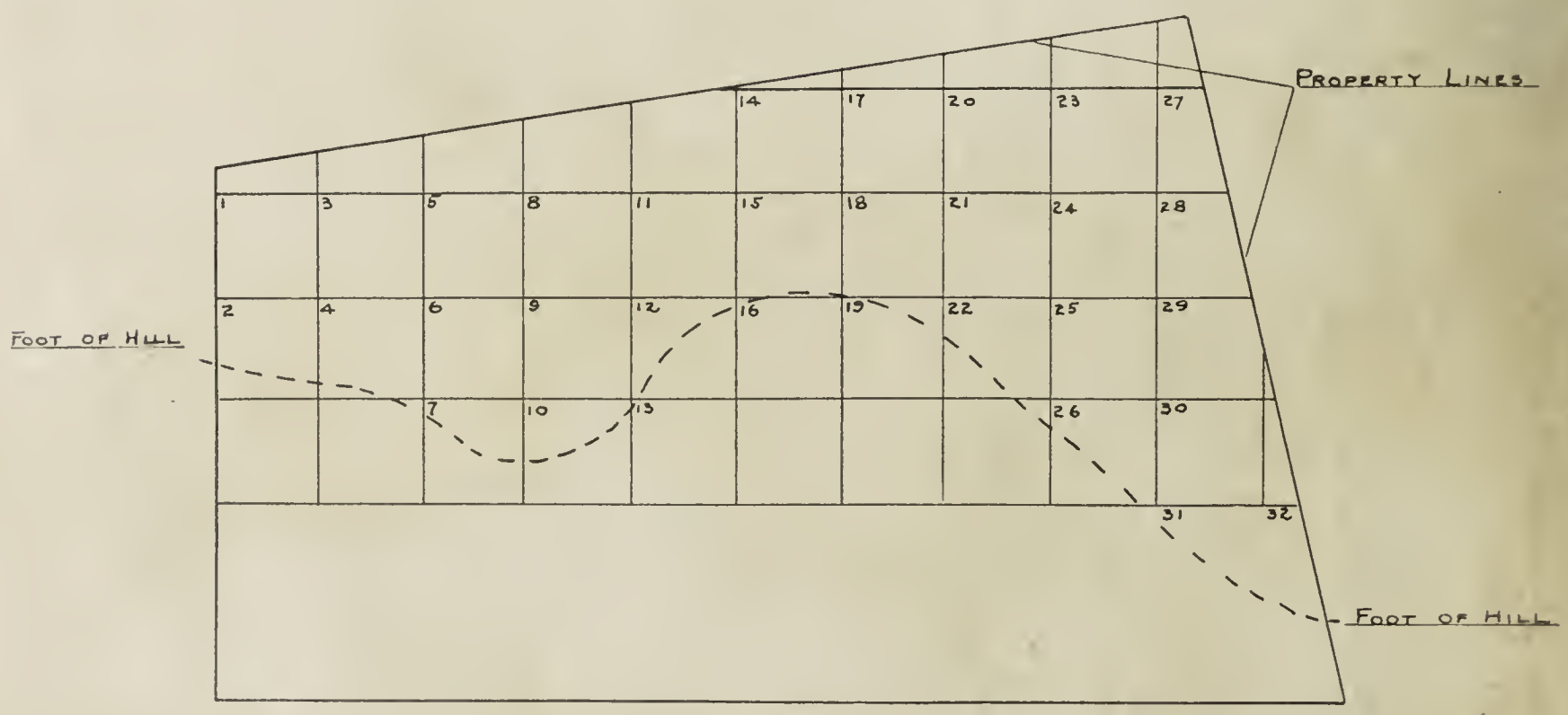


Fig. 7—Layout of Property for Drilling. Numbers Indicate Location of Test Holes

GOOD YEAR, *says N. J.*, DESPITE TROUBLES

THAT THE GENERAL PROSPERITY of the past year has been kind to manufacturers of brick, tile, sanitary ware and other clay products, with the possible exception of terra cotta, is shown by statements coming from the various clay plant executives in the Raritan river district of New Jersey. In several interviews these men expressed satisfaction with the results obtained during the past twelve months, and despite scarcity of labor and other obstacles, conditions in the clay industry in their section, in most cases, were better than usual.

LABOR WAS TROUBLESOME FACTOR AT TIMES

Trouble has been experienced by plant heads in the Raritan river section with labor, due to the activity of munition-making factories locating in the district. "War contract" wages were offered to attract workmen and many were signed up. While this did not do any great amount of damage to the clay industry, it proved a handicap at times.

A second obstacle that kept down the production of the clay products plants was entrenchment in the building line. The effect of this was particularly noticeable in the production of terra cotta. When asked about conditions in their plants during the past year, terra cotta men said that "it was not quite what it ought to have been." Another remarked that "we did not share in the general prosperity as much as we expected we would." It was pointed out that when new buildings were planned, the terra cotta was cut out in many cases on account of the high price of steel. This proved a boon to the fire-proofing and brick plants.

PREDICT COMING YEAR WILL BE BETTER THAN LAST

When asked about the prospects for the coming year, clay men expressed great confidence that 1917 would be even better than the twelvemonth just past. Some point to the ending of the war, while others say that much building work will be under way soon that will require considerable material from their plants.

A statement made by the National Fireproofing Company, with three plants in the vicinity of Perth Amboy, was to the effect that production in 1916 was up to the plants' average, perhaps a little better. They have had little labor trouble, except for a lack of workers.

A South Amboy Terra Cotta Company official gave out the information that conditions were not as good as usual, but that the outlook is bright. Lack of workmen at times was also mentioned by this concern.

HIGH STEEL PRICE HURTS TERRA COTTA BUSINESS

Officials of the New Jersey Terra Cotta Company, whose plant is in Perth Amboy, said that they were not working up to capacity, giving poor building conditions as a reason. The jump in the price of steel, it was said, acted against the terra cotta business, in many cases.

M. D. Valentine and Brother, manufacturers of firebrick, and so forth, report that conditions have been better than usual, their production being heavy. Two plants in Woodbridge township have been operated by this company during the past year.

A representative of the Federal Terra Company reiterated the claims of the other manufacturers in that line, referring to the price of steel holding back the terra cotta production. But he also had an optimistic word for the future.

SAYRE AND FISHER HAVE HAD GOOD YEAR

Sayre and Fisher Company, the largest brick manufacturers on the Raritan river, have been very busy during the past year. Their shipments were large, and only minor labor troubles took place.

The Atlantic Terra Cotta Company, one of their representatives said, has high hopes for the future.

The Fords Porcelain Company has enjoyed great prosperity during the past year. This plant was awarded several prizes for its exhibition of sanitary ware at the San Francisco Exposition.

Several other smaller plants, manufacturing various clay products, were kept very busy during 1916. The capacities of Monmouth county factories were, for the most part, well above the average.

General prosperity is reported by manufacturers of clay products in Mercer county. There are several potteries in and about Trenton that enjoyed the best twelve months of their existence.

NEW JERSEY CLAY MINE OPERATORS PROSPEROUS

Clay mine operators in the Raritan river section say that the past year has been an excellent one for them and claim that the coming twelve months will be even better. Charles A. Bloomfield of Metuchen, in an interview, said that the price of clay increased during 1916; that there was a great demand for the supply and that it was of excellent quality. Many orders were not filled, he said, on account of embargoes and lack of labor. "The manufacturers had a good year, I know," said Mr. Bloomfield, "especially the fire-brick and sanitary people."

COMING CONVENTIONS

Jan. 15th, 16th and 17th—Illinois Clay Manufacturers' Association, at Champaign, Ill. Headquarters Beardsley Hotel.

Jan. 15th to 19th—Iowa Clay Products Manufacturers' Association, at the Iowa State College, Ames.

Jan. 16th, 17th and 18th—Nebraska Brick and Tile Association, at University of Nebraska, Lincoln.

Jan. 18th and 19th—Northwestern Clay Association, at Minneapolis, Minn. Headquarters Hotel West.

Jan. 23rd, 24th and 25th—Canadian National Clay Products Association, Hamilton, Ont. Headquarters Royal Connaught Hotel.

Jan. 29th and 30th—National Terra Cotta Society, at New Orleans, La. Headquarters Grunewald Hotel.

Feb. 1st and 2nd—Wisconsin Clay Manufacturers' Association, at Milwaukee, Wis. Headquarters Republican House.

March 5th to 10th—National Brick Manufacturers' Association, at New York, N. Y. Headquarters McAlpin Hotel.

WIZARD'S WAND RAISES BURNED CLAY CITY *in the heart of the* ARIZONA DESERT

¶ *The accompanying article is the second that "Brick and Clay Record" has published concerning the adaptibility of hollow-tile as a building material in the arid sections of the Southwest, the first appearing in the April 20th, 1915, issue, under the heading: "Railroad Builds Hollow-tile Bunk Houses."*

¶ *Approximately seventy-nine carloads of hollow-tile, nine of common-brick and one of rough-textured face-brick have been shipped to Cornelia, Ariz., the name of the new town, from Los Angeles—the point of their manufacture. These shipments would amount in round figures to about 3,000 tons of hollow-tile and 150,000 brick.*

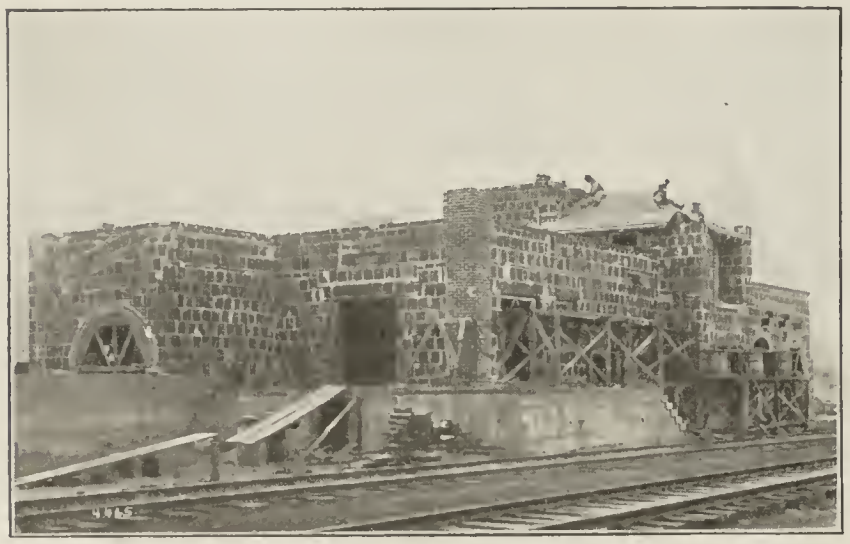
¶ *The fact that a freight rate of fifteen dollars per thousand was paid on common-brick shipped, demonstrates fully that the New Cornelia Copper Company appreciates the merits of burned clay construction.*

¶ *In addition to the above wares, vitrified clay sewer-pipe, as well as acid-resisting brick, have been shipped from Los Angeles, which makes everything under and above the ground and in the company's furnaces at Cornelia of burned clay products, notwithstanding the heavy freight cost for such long shipments.*

The Great Magician—Capital—Developing Huge Copper Deposits, Chooses Hollow-tile and Other Clay Wares for Important Part in Large Metallurgical Project

IN the most southwestern part of the United States, and in the heart of one of the most arid parts of our country, there is a mining camp called Ajo.

It will not be found on most maps, as up to a year ago, it was of little interest to anyone. Worked as far back as the early fifties for some very rich pockets of copper ore,



With the Stroke of a Pen the Machinery of a Concern That Talks in Big Figures Was Put In Motion to Raise Up Buildings Where for Years There Had Been Nothing but Alkali Dust and Cactus. One of These Buildings Was the Unfinished Railroad Station Shown in the Above Photograph

which had to be transported to the coast and then shipped to England, it had done nothing to attract attention. What little mining had been done was sufficient to demonstrate that ore existed in enormous bodies, but of too low grade to be worked at a profit at that time.

CAMP SLEEPS FOR MORE THAN SIXTY YEARS

The camp lay dormant until about three years ago, when it came to the attention of the management of the Calumet and Arizona Mining Company, who took an option on the property, then actually developed the ore body by diamond drilling, and developed a process to work it at a good profit. These facts having been satisfactorily determined, the property was taken up. Some 45,000,000 tons of 1.55 per cent. copper were developed.

There were many things to be done. First of all, the property was some forty-five miles from a railroad, and all material for the preliminary work had to be freighted in with teams over a desert road with no watering stations. Accordingly, a railroad was built, then construction was started on the plant to treat the ore, and finally, houses were erected for the men and their families who were to carry on this work.

PROBLEM OF BUILDING MATERIAL IS BROUGHT UP

Realizing the importance of having contented employes, the company decided to build houses that would prove comfortable in all seasons. Adobe had, up to the present time, been the standard building material in this arid country, and was the best obtainable. It had many disadvantages, however. The work of making adobe brick is quite tedious and expensive, besides adobe harbors more or less of the vermin common to the country, such as scorpions, centipedes, and so forth. Plaster on it has to be frequently renewed, and variations in design with such material are costly.

When the time came to decide upon the material from which to build these houses, much attention was paid to the subject. Adobe, red brick, lath and plaster, tile, concrete blocks and wood were all carefully considered.

HOLLOW-TILE WINS OUT OVER COMPETITORS

After a large amount of study and deliberation, hollow-tile was decided upon as having the most points in its favor. Ease of construction, durability, fire-resisting and the perfect insulation secured by the use of double air cells were among the points to its credit.

The Los Angeles (Cal.) Pressed Brick Company was at that time making an excellent three-cell tile. This, however, would permit of only a single air space, and at the suggestion of H. O. Lovald, the company's building inspector, who was the one to see the great advantages to be gained by a double air space in the walls, a special model was designed according to his specifications, and a four-cell tile manufactured for this purpose.

Among the advantages that are claimed for this four-cell tile are that the heat will not readily penetrate the double air space and that the inside temperature of the houses will be quite constant. Another advantage is the resistance to the heavy rain storms that occur during certain parts of the year; the rain will never penetrate both spaces—a frequent occurrence with adobe and concrete blocks.

UNIFORM STYLE OF ARCHITECTURE PREVAILS

The first contract let was for some twenty-four houses, a business block and a railroad station. These were all designed by the firm of Kenyon and Maine of Minneapolis, Minn.



A Bird's Eye View of Some of the Hollow-tile Buildings Which Dot the Desert at Cornelia, Ariz.

The houses are all of different design, but of a uniform style of architecture, all plastered outside with a Portland cement mortar, three-quarters of an inch thick, and inside with litholite.

The roofing is of white asbestos roofing paper, selected on account of its ability to reflect the intense heat, and will prove of great aid in keeping the buildings comfortable.

COMFORT THE DOMINATING FEATURE IN HOUSES

The buildings are further cooled by ventilators between the ceiling and the roof, giving a free air circulation. These are screened, and can be closed when necessary. Ventilation is also provided for under the floor by numerous air vents.

Each building is provided with the maximum porch space. These porches are all under the same roof as the buildings, and are completely screened in. These have smooth-troweled cement floors.

Casement windows are used exclusively, thus permitting the maximum ventilation. All buildings are provided with bath, electric lights and water, and all are connected with a modern sewer system. The electric wires are run thru conduit, thus further reducing the fire risk.

*An arcade fifteen feet wide extends the entire length of the building, roofed with Spanish tile.



One of the Workingmen's Cottages at New Cornella Before the Stucco Was Applied on the Hollow-tile Walls. It Is Safe, Sanitary and Comfortable

TILE USED IN HUGE BUSINESS BLOCK

The business block, which is being constructed in reinforced concrete, has the curtain wall built of this tile. It is about 297 ft. long, 125 ft. wide, and will include a bank, restaurant, store, post office, moving picture show, etc.,* on the first floor, while the second floor will contain lodge rooms, sleeping quarters, and so forth.

The railroad station, which will also be a tile structure, is of the same general design. A large circular dome will be the predominating feature. It will contain an open and an enclosed waiting room. A fifteen-foot arcade, covered with Spanish tile, will run the whole length of the building facing the plaza.

An effort has been made to maintain the Spanish style of architecture thruout the work, it being the most suitable for this kind of country and climate.

The last feature worthy of note in connection with the erection of the buildings described above, but far from being the least, is the unusually high freight rate which the owner was willing to pay for burned clay building materials.



Another Panoramic View of the Hollow-tile Buildings on the Site Where the Former Mining Camp of Ajo Was Located, Showing the More Pretentious Buildings of the New City in the Foreground

USE OF CERAMIC PRODUCTS *in the* ARTISTIC EMBELLISHMENT *of* BUILDINGS

Wherein is Shown What a Wonderful Field Has Clay Products for the Furnishing of Color in Modern Architecture

By Claude Bragdon*

Author and Architect, Rochester, N. Y.

IT IS FITTING that we should gather here to discuss the various and appropriate uses of that material to the production of which this building is dedicated. Of these uses the students and teachers, absorbed in the technical difficulties and triumphs of their craft, will think all too little, while we, relieved of these preoccupations, should think, in this discussion, of nothing else—of nothing, that is, but the larger issues; the ultimate uses and the inherent values of the products of ceramic art.

These uses, these values, are manifold and important. We are discussing what is perhaps the oldest of all of the useful arts practiced by man, an art with a magnificent history, and one more alive today, more universally, more skillfully—I wish I might add, more artfully—practiced than ever before. To me has been assigned the task of tracing the relation of ceramics to present-day architecture. I shall not consume valuable time with any historical summary, however brief, of the part played by this art in the architectures of the past, but as it is unwise to dispense with the lessons of the past, insofar—and only insofar—as history can help us in our modern problem, let us be retrospective.

TWO DIFFERENT TYPES OF ARCHITECTURE

Looking at the matter in the broadest possible way, it may be said that the building impulse thruout the ages has expressed itself in two fundamentally different types of structure, that in which the architecture—and even the ornament—was one with the engineering, and that in which the two were separable, not in thought alone, but in fact. To the first class belong the architectures of Egypt ,of Greece, and Gothic architecture as practiced in the north of Europe, to the second belong Roman architecture of the splendid period, Moorish architecture, and Italian Gothic, so called. In the first class the bones of the building were also its flesh; in the second, bones and flesh were in a manner separable, as is proven by the fact that they were separately considered, separately fashioned. Ruined Karnak, the ruined Parthenon, ruined Rheims, show ornament so integral a part of the construction, etched so deep, that what has survived of the one has survived also of the other; while the ruined Baths of Caracalla, the uncompleted Cathedral of Bologna, and many a stark mosque on many a sandy desert show only stripped skeletons of whose completed glory we can but guess. In them the fabric was a framework for the display of the lapidary or the ceramic art—a garment destroyed, rent or tattered by time or chance, leaving the bones still strong, but bare.

*Read at the Dedication of the New Ceramics Building, University of Illinois.

For brevity let us name that manner of building in which the architecture is the construction, inherent architecture, and that manner in which the two elements are separable, incrusted architecture. Let us draw no invidious comparisons between the two, but regard each as the adequate expression of an ideal type of beauty, the one masculine—since in the male figure the osseous framework is more easily discernable; the other feminine, because more concealed and overlaid with a cellular tissue of shining, precious materials, on which the disruptive forces of man and nature are more free to act. I need scarcely say that it is with incrusted architecture that we are almost solely concerned in this discussion, but I should perhaps call your attention to the fact that it is to this class that almost all modern buildings perforce belong. It is a necessity dictated by the materials that we have come to employ, and by our methods of construction.

ALL MODERN BUILDINGS FOLLOW ONE TYPE

All modern buildings follow practically one method of construction, a bony framework of steel, or of concrete reinforced by steel, filled in and subdivided by concrete, brick, hollow-tile, or some of its substitues. To a construction of this kind some sort of an outer encasement is not only aesthetically desirable, but practically necessary. It usually takes the form of stone, face-brick, tile, stucco, or some combination of two or more of these materials. Of the two great types of architecture, the incrusted type is therefore imposed by structural necessity, so long as our current form of construction lasts, we have no choice.

The enormous importance of ceramics in its relation to architecture thus becomes apparent. They minister to an architectural need instead of gratifying an architectural whim. Ours is a period of incrusted architecture—one which demands the enrichment of surfaces and the encasement rather than the exposure of structure. For this there is no material more apt, more adaptable, more enduring, richer in possibilities, than the products of ceramic art.

These are easily and inexpensively produced of any desired shape, color and texture; their hard, smooth surface resists the action of the elements, is not readily soiled, and once soiled, is easily cleaned; fashioned by fire they are fire-resistant.

So much, then, for the practical demand, in modern architecture, of the products of ceramic art. The aesthetic demand is not less urgent, and is as admirably met.

ELIMINATION OF COLOR TRACED TO RENAISSANCE

When in the sixteenth century, the Renaissance spread

from south to north, color was practically eliminated from architecture. The Egyptians had had it hot and bright as the sun on the desert; we know that the Greeks made their Parian marble glow in rainbow tints; Moorish architecture was nothing if not colorful, and the Venice Ruskin loved was fairly iridescent—a thing of fire opal and pearl. In Italian Renaissance architecure up to its latest phase, the color element was always present; but as I began by saying, it was snuffed out under the leaden-colored northern skies. Paris is gray, London is brown, New York is white and Chicago the color of cinders. We have only to compare them to yellow Rome, red Siena, and pearl-tinted Venice, to realize how much, in the elimination of color from architecture, we have lost. We are coming to realize it. You will remember how important a part color played in the Pan-American Exposition, what increased importance it assumed in the recent San Francisco Exposition, where, wedded to light, it became the dominant note of the whole architectural concert. Now these great expositions in which the architects and artists are given a free hand, are in the nature of preliminary studies in which these functionaries sketch in transitory form the things they desire to do in more permanent form. They are forecasts of the future, a future which in certain quarters is already beginning to realize itself. It is therefore probable that the next development in architectural art will be in this direction—towards color; I can at least give my personal testimony to that effect. Several years ago, in the Albright Art Gallery in Buffalo—a building, as you may remember, of a severely classic type—I noted a single doorway whose white marble architrave had been stained with different colored pigments by Francis Bacon, and it made the rest of the place seem so cold and dun that I decided then and there that architecture without polychromy was architecture incomplete.

Bacon had spent many years studying the remains of Greek architecture in Asia Minor and elsewhere, and he once showed me a fragment of an antefix from the Temple of Assos in which the applied color was still pure and strong. Ever since, I have tried to introduce color into my buildings, so that now I would not dream of doing without this added element of interest, of charm.

CLAYWORKERS' ACCOMPLISHMENTS UNAPPRECIATED

It goes without saying that ceramic products are ideal for this purpose. In them nearly the whole gamut of the spectrum is available to the architect. The colors do not change nor fade, and possess a beautiful quality. The situation is really a sad one; our craftsmen and manufacturers of face-brick, architectural terra cotta and colored tile, after much costly experimentation, have succeeded in producing these ceramics of a high order of excellence and intrinsic beauty; they can do practically anything demanded of them; but from that quarter where they would reap the greatest commercial advantage—the field of architecture—there is all too little demand. The architect who should lead, teach and dictate in this field, is content to learn and follow instead. This has led to an ignominious situation—ignominious, I mean, to the architect. He has come to require of the manufacturer—when he requires anything at all—assistance in the very matter in which he should assist—the determination of color-design. It is no wonder that the results are often bad, and therefore, discouraging. The manufacturers of ceramics welcome co-operation and assistance on the part of the architect, with an eagerness which is almost pathetic, on those rare occasions when assistance is offered. Such at least, has been my own experience.

ARCHITECT MUST KNOW A LITTLE OF EVERYTHING

But the architect is not really to blame: the reason for his failure lies deep in his general predicament of having to know a little of everything, and do a great deal more than he can possibly do well. To cope with this, if his practice warrants the expenditure, he surrounds himself with specialists in various fields, and assigns various departments of his work to them. He cannot be expected to have on this staff a specialist in ceramics, nor can he, with all his manifold activities, be expected to become such a specialist himself. As a result, he is usually content to let color problems alone, for they are just another complication of his already too complicated life; or he refers them to someone whom he thinks ought to know—a manufacturer's designer—and O.K.'s almost anything submitted to him.

I do not offer this explanation in apology for the architect's attitude, but in justice to him. Of course, the ideal architect would have time for every problem, and solve it supremely well; but the real architect is all too human, there are depressions on his cranium where bumps ought to be; moreover, he wants a little time left to energize in other directions than the practice of his craft.

One of the functions of architecture is to reveal the inherent qualities and beauties of different materials, by their appropriate use and tasteful display. An onyx staircase on the one hand, and a portland cement high altar on the other alike violate this function of architecture. Make your high altar of onyx and lapis-lazuli and your staircase of portland cement, and you have obeyed—not ignored—that beautiful necessity which decrees that precious materials should serve precious uses and common materials should serve utilitarian ends. Now color is a precious thing, and its highest beauties can only be brought out by contrast with broad neutral tinted spaces. The interior walls of a Mediaeval cathedral never competed with its windows, and by the same token, a riot of polychromy all over the side of a building is not as effective, even from a chromatic point of view, as though it were confined, say, to an entrance and a frieze. Gilbert's witty phrase is applicable here:

"Where everybody's somebody, nobody's anybody."

TOUCH OF COLOR SHOULD NOT BE FORGOTTEN

Let us build our walls, then, of brick, or stone, or stucco, for their flat surfaces and neutral tints conduce to that repose so essential to good architectural effect; let us not rest content with this, however, but grant to the eye the delight and contentment which it craves, by color and pattern placed at those points to which it is desirable to attract attention, for these things serve the same aesthetic purpose as a tiara on the brow of beauty, or a ring on a delicate white hand. But just as jewelry is best when it is most individual, so the ornament of a building should be in keeping with its general character and complexion. A color scheme should not be chosen at random, but dictated by the prevailing tone and texture of the wall surfaces, with which it should harmonize as inevitably as the blossom of a bush with its foliage. This prevailing tone will inevitably be either cold or warm, and the color scheme must just as inevitably be either cold or warm; that is, there must be a preponderance of cold colors over warm, or vice versa. Otherwise the eye will suffer just that order of uneasiness which comes from the contemplation of two equal masses, whereas it experiences satisfaction in proportionate unequals.

POINTS TO BE REMEMBERED IN SELECTING COLOR

Nothing will take the place of an instinctive color-sense, but even that needs the training of experience, if the field be new, and will be aided by a few general principles of all but universal application.

First of all it should be remembered that the intensity of color should be carefully adjusted to its area. It is dangerous to try to use high, pure colors, unrelieved and uncontrasted, in large masses, but the brightest, strongest colors may be used with impunity in units of sufficiently restricted size. For harmony, as well as richness, the law of comple-

mentaries is the best of all guides. There is just now a great deal of vivid discussion as to just what the true primary colors are, and how they should be modified and combined in order to make music to the eye. My own conclusions, founded not on scientific research, or theorizing, but on actual experiments with colored light are in conformity with the conclusions arrived at by Louis W. Wilson of the Chicago Art Institute, the author of the so called Wilson Parallel between color and sound.

Another important consideration with regard to color dwells in those optical changes effected by distance, and the relative visibility of different colors and combinations of color as the point of sight recedes. In general, they seem to merge into one another, and all the values to lower, but not all equally. Yellow loses itself first, tending towards white; the greens and blues efface themselves next, and the reds last of all. Another curious effect of distance is to disintegrate secondary colors into their primaries and to make the complementaries emerge. A knowledge of these and kindred facts will save the architect from many disappointments and enable him to obtain wonderful chromatic effects by simple means.

Many architects unused to color problems design their ornament with very little thought about the colors which they propose to employ, making it an after consideration; but the two things should be considered synchronously for the best final effect. Color is capable of making surfaces advance toward or recede from the eye, just as modeling does; and for this reason, if color is used, a great deal of modeling may be dispensed with. If a receding color is used on a recessed plane, it deepens that plane unduly; while on the other hand, if a color which refuses to recede, like yellow for example, is used where depth is wanted, the receding plane and the approaching color neutralize each other, resulting in an effect of flatness not intended. The tyro should not complicate his problem by combining color with high relief modeling, bringing inevitably in the element of light and shade. He should leave that for older hands and concern himself rather with flat or nearly flat surfaces, using his modeling much as the worker in cloisonne uses his little rims of brass—to confine and define each color within its own alloted area. Then, as he gains experience, he can gradually enrich his pattern by the addition of the element of light and shade.

CARE SHOULD BE USED IN PLACING CERAMICS

Now as to certain general considerations in relation to the appropriate and logical use of ceramics in the construction and adornment of buildings, exterior and interior. In our northern latitudes care should be taken that ceramics are not used in places and in ways where the accumulation of snow and ice render the joints subject to alternate freezing and thawing, for in such case, unless the joints are protected with metal, the units will work loose in time. On vertical surfaces such protection is not necessary; the use of ceramics of the finer and more delicate sort should therefore be confined for the most part to such surfaces; for friezes, panels, door and window architraves, and the like. When it is desirable for aesthetic reasons to tie a series of windows together vertically by means of some "fill" of a material different from that of the body of the wall, colored tiles or brick pattern work lend themselves admirably to the purpose —better than wood, which rots; than iron, which rusts; than bronze, which turns black, and than marble, which soon loses its color and texture in exposed situations of this sort.

PROPER USE OF CLAY PRODUCTS FOR INTERIORS

On the interior of buildings, the most universal use of architectural ceramics is, of course, for floors, and with the non-slip devices of various sorts which have come into the market, they are no less good for stairs. There is nothing better for wainscoting, and in fact for any surface whatsoever subject to soil and wear. The one material combines permanent protection and permanent decoration. But with the zeal of the convert, the use of ceramics may be overdone. I recall entire rooms of this material, floors, walls, ceilings, which are less successful than as tho a variety of materials had been employed. It is just such variety, each material treated in a characteristic, and therefore different, way, that gives charm to so many foreign churches and cathedrals; walls of stone, floors of marble, choir-stalls of carved wood, and roof-screen of metal—it is just the difference between an orchestra of contrasted instruments and a mandolin orchestra or a saxaphone sextette. Ceramics should never invade the domain of the plasterer, the murai painter, the cabinetmaker. Do not let us, in our zeal for ceramics, become like Bottom, the tinker, eager to play every part.

Ceramics have, as regards architecture, a distinct and honorable function. The function should be recognized, taken advantage of, but never overpassed. They offer opportunities large, but not limitless. They constitute one instrument of the orchestra of which the architect is the conductor, an instrument beautiful in the hands of a master, and doubly beautiful in concert and contrast with those other materials which make that music in three dimensions, architectural art.

Convention to Discuss Foreign Trade

On January 25th, 26th and 27th, 1917, the Fourth National Foreign Trade Convention will be held at the William Penn Hotel, Pittsburgh, Pa., under the direction of the National Foreign Trade Council, for the purpose of giving some serious consideration to the many important problems arising in the foreign trade of the United States.

The program, according to the preliminary report of the council, will be designed to give the greatest possible benefit to those engaged in, or desirous of entering, oversea commerce, and will be based upon the *acceptance* of proven principles of foreign trade, such as the necessity of adequate banking facilities and transportation, adaptation of product and sales methods to market, proper packing, knowledge of foreign tariffs, and helpful relation of investment to export trade; therefore, prepared papers and discussions will relate to the practical application of these principles, rather than their reiteration.

Men long experienced and successful in conducting foreign trade will act as volunteer trade advisors to those attending the convention, and every effort will be made to bring those delegates desiring information and advice into conference with authorities capable of assisting them. The State department of the United States government will detail several United States consuls general to the convention for the purpose of individual consultation, and to provide information to delegates. The Secretary of Commerce has also assigned officials from the Bureau of Foreign and Domestic Commerce to duty at the trade convention.

Read the Announcement

on page 37, concerning "Coming Conventions." Some of These Gatherings Should Interest You. At Least It Won't Do Any Harm to "Rub Elbows" with

Your Fellow Clayworkers

DO NOT FORGET

to

REGISTER

Attention is Called to January 15th as Being the Final Day Upon Which Registrations Will Be Received from Those Desiring to Take Part in "Brick and Clay Record's" Second Ceramic Students Essay Contest

DETAILS OF THE CONTEST

Who Are Eligible—All Students Enrolled in a Course of Ceramic Engineering at the Various Universities and Colleges in the United States and Canada.

How to Participate—Prepare a Paper on a Clayworking Subject and Submit It to the Editor of "Brick and Clay Record" Thru the Director of Ceramics at Your School or Direct.

The Prize—A Complete Set of the Transactions of the American Ceramic Society, Bound in Cloth, and Worth One Hundred Dollars; Also Three Honorable Mentions as Second, Third and Fourth Prizes.

REGISTRATIONS MUST BE IN BY JAN. 15th.
CONTEST CLOSES MAY 15th.

"I NOTE with pleasure that you have decided to offer a set of the Transactions as a prize for your essay contest this winter," writes the director of the ceramics department in one of our colleges. "The young men in my laboratory are enthused over the project and are going to make a mighty effort to carry off the plum."

It is very evident from what has been heard concerning "Brick and Clay Record's" Second Ceramic Students Essay Contest that the prize—a complete set of the Transactions of the American Ceramic Society, including Volume No. 18—has been well received. In this connection, Professor Edward Orton, Jr., writes, under date of December 21st, as follows:

"I certainly appreciate the generosity of 'Brick and Clay Record' in making so notable a prize as a complete set of the Transactions of the A.C.S. Such a prize is worth working for, and I have no doubt that you will procure a fine lot of material from the competition."

JANUARY 15TH IS THE FINAL REGISTRATION DATE

While ceramic students are expressing their gratification with the nature and value of the prize, it must not be overlooked that in order to participate in the contest it is necessary for each and every student to file his name with the Editor of "Brick and Clay Record" not later than January 15th, 1917. This is necessary in order that we may know exactly who is contemplating submitting a paper, together with the total number of participants.

Nor should the other details and rules of procedure governing the competition be forgotten. For instance, four months will be allowed in which to prepare a paper to be submitted for consideration, bringing the contest to a close on May 15th, 1917. The reason for such a long period of time being given is that, knowing that the writing of a first-class paper on any ceramic subject is a work in which care is required and investigations are necessary, it is desired to give every student the fullest opportunity to do his best.

A competent judge or committee of judges will be appointed to make the awards, following the close of the competition and these will be announced just as quickly as possible after May 15th.

Eligibility in this contest consists in partaking of a definitely prescribed ceramic engineering course in any one of the following universities or colleges: University of Illinois, Ohio State University, Iowa State College, New York State School of Clayworking and Ceramics and Rutgers College. Students from other schools offering courses similar to those given in the preceding list, are also eligible for this contest.

DO NOT NEGLECT THIS IMPORTANT MATTER

In this, the final announcement concerning the competition preceding the date of registration, we again wish to call attention to the importance of every student observing the first rule of the contest, namely, the filing of his name with the Editor in order to insure his right to take part in same. Do not let anything interfere with your getting a letter off to us at once, signifying your intention to take part. The holidays, in some instances, have probably interfered with the registration of students, owing to their absence from the various ceramic schools in the country, but this should not be allowed to result in the student's being barred from the contest, as ample time is available for attending to this matter upon return from the Christmas holidays, if it is given prompt attention.

The success of the first contest was encouraging, but we look for greater results in the second competition, both in point of quality in the papers and the number of students participating.

* * *

Pottery Ranked Third in Mexican Industries

One of Mexico principal industries, which ranked third in extent and importance a few years ago, is pottery. This class of ware is made in every section of the war-torn republic, every city and community having its pottery establishment. One of the interesting features of the Mexican product is that generations of training have given the pottery workers a distinctive and characteristic ability. For this reason the articles made in each section bear some distinctive mark which identifies them as products coming from some certain settlement.

HOLLOW-TILE FARM BUILDINGS FORERUNNER *of a* NEW ERA



Laying Up the Walls of the Hollow-tile Barn on the Barcroft Farm

Near Future Will See Entrance of Period When Most Farm Buildings Will be of Fire-safe Construction, Like Those Described Herein

SUPPLEMENTING the text-book of Experience with knowledge gained thru extensive research and experiment, the nation's farmers of today are rapidly exhibiting a tendency towards the construction of more lasting and durable barns and out-houses than has been the custom in the years gone by. Where, ten years ago, a farmer was considered wastefully extravagant if he built a barn of anything but wood, today finds the construction of the farm barn of more substantial, safe and permanent materials, a matter of economy and a good investment.

FIRST TILE BUILDING IS FOLLOWED BY OTHERS

The manufacturer of burned clay building materials, particularly hollow-tile, sees in this movement of progress an exceedingly encouraging situation, for everywhere is his material accepted as the standard of better building on the farm. In a constantly growing number of instances the erection of a hollow-tile silo, barn or any other agricultural structure in a locality that has never before used this material is followed by the rapid construction of every possible type of building from the everlasting material. Modern farming practice is, in fact, beginning to dictate the use of hollow-tile in farm buildings as making an infinitely better structure than is possible by the use of any other material available for this purpose. Its properties of permanence, fire-safety, warmth and beauty are making a very effective appeal for hollow-tile to progressive agriculturalists who are in business (and farming is fast becoming recognized as such) for the purpose of winning from the soil a good living—not a bare existence.

If there has been any one set of farmers which has shown a quick appreciation of the merits of hollow-tile for building purposes, it is that interested in dairying. Usually of a prosperous and progressive type, those included in this class have seen the handwriting on the wall for farmers who refused to keep step with the march of progress. Consequently, their methods are characterized by a willingness to accept the findings of later-day dairying, one of the most important of which is the housing of the cows in a warm and comfortable barn.

FOUNDATION OF MANY AGRICULTURAL SUCCESSES

And should we analyze this practice, we would find it to be the very foundation of many agricultural successes. Prosperity on the farm is usually dependent upon the success of the crops. In turn, good crops are directly dependent upon the manner in which the fertility of the soil is conserved. Without live stock, of which dairy animals are the most common, the soil's fertility is rapidly depleted. Carrying our "House that Jack Built" logic one step further, the health of the cows and other stock on the farm is affected by no other one thing as much as the manner in which the animals are housed. And where, as in the case of a dairy farm, the chief revenue depends almost entirely on the health of the cows, it is eminently important that their shelter should receive serious consideration.

A MODEL HOLLOW-TILE DAIRY BARN

As a model of proper dairy barn construction, the hollow-tile barn on the Barcroft farm in Polk county, Iowa, which is shown in the accompanying illustrations, is hard to excel. A review of the circumstances under which the barn was built will be interesting, especially inasmuch as it points out the trend of the times toward more business-like farming.

"The Regeneration of a Broken-down Farm," or "Turning Loss into Profit," are titles that might well be used

to head this tale, for less than a year and a half ago R. A. Barcroft purchased the property, on which the barn described in this article now stands, but it was then in a run-down and entirely unprofitable condition. Ramshackle and flimsy frame structures stood as monuments to the poor management under which the farm had been operated during the preceding years. The house was very much like the barn and out-houses in flimsy, unsafe and cold construction.

Under the new management a reconstruction of the farm was effected. The house that had previously served as a shelter for the owner was replaced with a structure that would do credit to any city lot. The barn in which the cows formerly huddled together during winter weather, looking for some slight shelter from the cold, was torn down and in its stead was reared a structure of hollow-tile that will defy the ravages of time for generations to come. Following this, came the erection of two immense hollow-tile silos and a sanitary hollow-tile combination milk and ice-house—an important addition to any dairy farm.

SOME DETAILS CONCERNING ITS CONSTRUCTION

The barn itself offers an interesting study for those manufacturers of hollow building tile who wish to develop the farm market. Its outside measurements are forty-two by eighty-six feet and it measures twelve feet to the eaves and thirty-six feet to the ridge. The walls of eight-inch hollow-tile are laid upon a foundation of the same material twenty-four inches deep, which rests upon concrete footings four inches deep and twenty inches wide.

The walls of this barn are reinforced above all the doors and windows with two-by-four inch angle irons sunk into the mortar four inches. This type of reinforcement is also used at the top of the wall upon which the roof rests. The manner in which the self-supporting roof has been fastened to the wall is especially interesting and somewhat out of the ordinary. A plate made from two-by-eight inch planks was bolted to the top course of the tile which was filled with concrete mortar. Nailed to this plate are the two-by-twelve inch joists supporting the second floor. To these joists has been nailed a second plate of two-by-six inch lumber to which the roof rafters are fastened. Eight ventilators in all cap the roof and, by means of a ventilating system, which will be explained later, they provide fresh air in abundance for the cattle.

ROOM FOR THIRTY-EIGHT HEAD OF CATTLE

The barn consists of two stories, the first being used to accommodate the cows and the second as a hay mow. There are thirty-eight stanchions on the lower floor, running in two rows on each side of the barn, both rows being separated into two sections by a gang-way across the center of the barn, thus making in all four sections. At the southeast corner of this floor a ten-by-ten foot space is fenced off as a bull pen. This shortens the stanchion section in that part of the barn by two, leaving it but eight, while the other three sections contain ten stanchions each.

The floor of the barn has been laid in accordance with the very latest principles of construction. After the ground had been leveled off properly, a two and one-half inch sand bed was tamped over it. On top of this cushion was laid 4 x 8 x 12-inch hollow-tile flat which were, in turn, covered with a two and one-half inch surface of cement. In this manner a perfectly dry, warm and sanitary, as well as smooth, floor was obtained, every portion of which has been sloped to some of the several outlets provided, so that when the floor is washed or becomes wet, the water immediately runs off.

FEED AND LITTER TROUGHS CONTINUOUS

The stalls are three and one-half feet wide and face toward the long aisle that runs thru the center of the barn. On each side of this aisle and in front of the stalls are the undivided feed troughs which extend the entire length of each section of stanchions. The last mentioned equipment is of metal.

A continuous litter trough sixteen inches wide extends the full length of the barn on each side behind the cows and separates the stalls from the runways along the barn wall. The floor of the stalls is two and one-half inches higher than the floor on the other side of the gutter and toward the wall, and is level for a distance of eighteen inches from the feed trough. Starting at this point, it is sloped about one-half inch to the gutter. The reason this



Neatness and Permanence Are Notable Characteristics of the Hollow-tile Farm Buildings Shown In the Above Illustration. The Building to the Left of the Picture Is a Large Dairy Barn, While That to the Right Is a Combination Milk and Ice House

arrangement has been followed is because the level stretch immediately in front of the feed trough gives the cows a permanent footing, making it easier for them to



Metal Stanchions and Iron Columns Add to the Fireproof and Sanitary Features of the Hollow-tile Barn Described in the Accompanying Article

stand. A drop of one-half inch has also been made in that section of the floor between the barn wall and the gutter.

FEED TROUGHS BUILT OF HOLLOW-TILE

Even in the construction of the feed troughs hollow-tile predominates. These boxes rise abruptly from the floor on the outside for about two feet, and slant down gradually to the front of the stalls in which the cows are quartered. In building them, eight-inch hollow-tile were first laid on edge and upon this course was laid a row of four-inch tile on edge, these sizes being 8 x 8 x 12 and 4 x 8 x 12, respectively. The tile were then covered with concrete, which gave a smooth surface to the construction. Because of the warm, dry properties of the floor and boxes due to the use of hollow-tile, silage may be permitted to stand for a comparatively long time without losing any of its nourishing juices, except that part which might be lost thru evaporation.

WINDOWS ARRANGED SO THAT FLOOR GETS SUN BATH

Twenty-four comparatively large-sized windows, divided between the east and the west walls of the barn on the first floor, permit an abundance of the germ-killing rays of sunlight to find an easy entrance at all times of the day. In fact, the barn has been erected with this in mind. Since it is built extending north and south, the east windows catch the morning rays of the sun and send them far into the interior. As the sun rises the rays are gradually drawn back toward the wall until, at noon, they have completely bathed that entire half of the barn. In the afternoon the operation is reversed. As the sun drops over to the west side of the barn the rays are directed upon the floor near the wall by the west windows and as the afternoon progresses, they make their advance towards the center of the barn.

Eight doors in all provide convenient entrance into the barn for both men and cattle. Six of these are of the ordinary size, while two measure four by seven feet, one each of these being placed at either end of the barn.

HAY MOW FLOOR WELL SUPPORTED

As has been mentioned, the second story of this barn is used as a hay mow and is accessible from the first floor by means of a weighted stairway which, when not in use, may be swung up to the ceiling and put out of the way. The floor of this mow is well supported by three two-by-twelve inch planks bolted together directly above the front line of the stanchions and held up by four-inch steel columns which have been filled with concrete. Each of these columns rests upon a foundation of solid concrete measuring two feet square and sunk into the ground. With this stout construction, the tremendous weight of a well-filled mow may be safely imposed upon the floor in question.

The hay is received onto this floor thru a ten-by-ten foot hinged door at the north end of the barn, and is conveyed to any part of the mow by means of a carrier which operates on a track suspended from the ridge the entire length of the barn. A second large door is provided on the east side of the barn, which measures seven-by-seven feet and thru which any material, such as baled hay or grain, is received when it is to be stored.

The rafters of the roof are laid on twenty-four inch centers and have been covered by sheathing and then shingled. Three windows admit sufficient light into the mow, while two of the large galvanized iron ventilators on the roof provide excellent ventilation.

VENTILATION SYSTEM IS UNUSUAL

If any one feature of this model barn can be singled out and pointed to as being worthy of special notice, it is the unusual and efficient ventilation system that has been installed to create a proper movement of air on the lower

(*Contnued on Page 74.*)



Another View of the Hollow-tile Barn on the Barcroft Farm. This Picture Shows, to Some Extent, the Generous Supply of Windows and Doors Which Has Been Provided, and Which Make for Convenience and a Sanitary Interior. The Substantial Nature of the Silo Appearing in the Background Permits of the Erection of a Windmill Upon its Roof

COUNTING *the* COST

The First of a Series of Tabloid Talks on the Wisdom and Fundamentals of Cost Finding by One Who Has Been "Thru the Mill"

G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company,
Uniontown, Pa.

"HOW do you make a doughnut? Why, you take a round hole and wrap dough around it."

I am often reminded of these directions when I read articles on the subject of cost finding. They encompass nothing. Now, it would seem evident that cost finding and bookkeeping should at least go hand in hand. For example, if the cost records show a profit of five dollars per thousand brick and the annual statement shows a net loss for the year, there is



G. W. GREENWOOD

evidently something wrong somewhere. Finding the trouble is, however, quite a different matter from merely being certain that trouble exists. Pain and the cause of it are often widely separated.

> "One plant, the largest in the business, made two tries at getting costs. The first attempt was made by outside talent and the resulting costs—largely a compilation of arbitrarily picked figures—showed that a profit was being secured on every article they made. The Profit and Loss Account at the end of the year showed this to be ridiculous. Another attempt, made by their own people, had exactly the opposite effect by showing that they lost money on everything they made. This again was out of the question as they would have been bankrupt in a few years on the basis of the figures shown, instead of which they were just 'getting by.'"
>
> —*The Sphinx Talks, October,* 1915.

BOOKKEEPING AND COST FINDING

But there is more than a simple connection between bookkeeping and cost finding. Bookkeeping *is* cost finding. It would be difficult to find a manufacturer who did not keep double entry books. Therefore, we may say that every manufacturer engages in some form of cost accounting.

At a meeting of manufacturers some time ago, each responded in the affirmative to the question as to whether or not he kept cost records.

"Is he conscious?" solicitously inquired one woman of another whose husband had met with an accident.

"Yes, thank goodness, he's conscious," was the reply, *"but he doesn't know anything!"*

So, many a manufacturer may thank goodness that he is still conscious, but he doesn't know anything.

WHERE TO BEGIN

There is an old, old story of a ship whose crew was in distress for lack of fresh water. It signaled a passing vessel and was told that it was in the mouth of the Amazon river, and to let down its buckets just where it was. This should be the text of any initial discussion of cost finding. *Let down your bucket where you are.*

THE BEST SYSTEM

What is the best cost system? The one which gives the greatest amount of accurate and valuable information in return for the time and effort expended. Measured thus, the fragmentary records of the man who is superintendent, bookkeeper, salesman and draughtsman for a small plant may be more valuable than the elaborate records of some large concern, but of which little use is made.

For example, the writer has been told on good authority of a large concern—not in the brick business, however—which keeps exhaustive records concerning the service given by different materials, but the purchasing department declines to avail itself of this information for the purpose of placing orders. This firm's system, so far as the service of materials is concerned, is not only expensive, but for all practical purposes, useless. Were it not for the fact that this company has a capital of many millions, it would not be able to finance the keeping of these records.

To sum up: do not regard cost finding as a visit into some realm of intricate calculations; it is merely *a system of bookkeeping* carried to whatever extent the individual manufacturer considers practical and profitable.

(*To be Continued.*)

NEW YORK BUILDING SHOW
WAITING *on* BRICKMAKERS

Prompt Action Should Be Taken to Insure a Creditable Showing for Clay Products at the Mammoth Exposition in New York During March

IT WOULD SEEM that the experience of the brick manufacturers who co-operated in making an impressive display of their material in the first American Complete Building Show at Cleveland, last February, would assure similar action on the part of the eastern manufacturers in the second National Complete Building Exposition, which is to be held in the Grand Central Palace, New York, March 5th to 11th, 1917. However, it is reported by the management of the New York show that up to this time no activity has been manifested on the part of the brick men, even tho the manufacturers of other structural materials entering into modern building have been quick to recognize the opportunity and have reserved for themselves spaces accordingly.

The thousands of visitors interested in the building industry who viewed the splendid showing made by the Ohio brick men with the assistance of the Chicago association, were proud of the effort. That it paid in dollars and cents, there are none to deny. This splendid showing of brick influenced a great many prospective builders who visited the show, and this is reflected in the remarkable increase of more than one hundred per cent. in brick home construction in Greater Cleveland during the present year. The building records show that the amounts put into residences by home owners is practically double that of any former year.

BRICK HOMES BOOKLET WAS GOOD INVESTMENT

The circulation of ten thousand copies of the booklet "Brick Homes At Low Cost," published by the group of manufacturers who financed the brick display, has been called one of the best promotion enterprises ever carried out in the country in the interest of face-brick. Thousands of sets of plans have been sold to home builders in all parts of the country thru this publicity, and the book has done much to strengthen the impression that the brick home is not beyond the reach of the average home builder. That the show in New York offers even a greater opportunity for helping the industry, is beyond question. New York is the center of the greatest building area in the world.

HALF MILLION, IT IS ESTIMATED, WILL ATTEND

The Grand Central Palace, where the exposition will be held, is within a trolley ride of 7,000,000 people. It is the most palatial exposition building in America. Nearly 150,000 people attended the show in Cleveland. It is expected that the attendance of the New York show will be between two and three times that number. The same effort is being made thru publicity, trade conventions and architectural competition to attract to the New York show those who are really interested in building. The real value of the Cleveland show was in the quality of the attendance rather than the quantity. Exhibitors found that they were talking to people who were planning to use their materials, and this also will be true of the show in New York. Almost without exception, the exhibitors in the Cleveland show have voluntarily testified to satisfactory, and in many cases, surprising results. As a sales promotion enterprise, it excels any former effort made by these companies. The exhibitors in the New York show will receive even greater benefits on account of the larger opportunity. The fact that shows in the past have failed to produce is in no sense a reflection upon this type of show, which had its inception with the Cleveland exposition last year, so far as this country is concerned.

NEW FEATURES TO BE SEEN IN NEW YORK SHOW

While the department of the New York show devoted to home building equipment and furnishings will be much larger than in Cleveland, the Grand Central Palace gives an opportunity for many departments that were not found in the first show. For instance, there will be a department devoted to church planning and construction, theatres, factory buildings, office buildings and other construction of a commercial nature.

There will be a comprehensive machinery exhibit at the New York exposition at which brickmaking and other clay and cement machinery will be shown for the benefit of the many manufacturers who will attend. Numerous trade conventions will be held in New York during the show, attracting dealers and manufacturers of every sort in the Union.

MODERATE-PRICED HOME COMPETITION TO BE HELD

A novel architectural competition is to be held in connection with the show. This will consist of drawings of houses actually erected at a cost not exceeding $5,500. Five hundred dollars in prizes will be given away to the successful draftsmen. The competition is open to architects and builders everywhere and equal consideration will be given to the drawings, regardless of the price of the house, if it does not exceed $5,500. This means that the first prize may go to the designer of a $3,500 house, providing the judges find that this is the best house for the money submitted in the competition. There is no restriction as to materials used, but the house must have been completed since January 1st, 1914. All drawings are to be sent to the National Complete Building Show Company, Grand Central Palace, New York, N. Y., before January 15th, 1917.

* * *

Bureau of Standards Tests Refractories

One of the most elaborate investigations dealing with tests of finished clay refractories of this country ever undertaken has been started by the United States Bureau of Standards in co-operation with the Refractories Manufacturers' Association and the American Gas Institute. It is proposed to make this work the basis of a system of classification and to determine a method of testing that will apply to the several classes of fire-clay refractories.

The Bureau also has begun preliminary work on another investigation dealing with a phase of the same industry, using a dolomite in certain metallurgical furnaces as a refractory. Usually the burned dolomite is placed directly in position in the furnace with tar or some

other combustible material as a binder. Where the lining was of such a nature that it had to be made of brick, magnesite brick was used. The price of magnesite brick, however, has advanced to such a degree that the use of this material has become almost prohibitive. It has been suggested at various times that dolomite might be burned in such a manner, or with the addition of such impurities that the lime present in it would not slake, except after an extended period, making it possible to produce a brick of this material which would replace the magnesite brick. The Bureau by its investigation will determine the possibility of producing such a burned dolomite.

BUREAU CONDUCTS OTHER IMPORTANT EXPERIMENTS

The Bureau during the month of October conducted many experiments dealing with clay products. In the fire-brick investigation twenty-four sets of ten specimens, each set being furnished by an individual manufacturer, were prepared, corresponding to twenty-four brands of fire-brick, and the results obtained were plotted. For porosity and density determinations, 144 specimens of fire-brick were prepared, corresponding to twenty-four new brands.

In the silica-brick investigation the volume of expansion of thirty-two specimens of silica-brick was determined. In the investigation of the effect of calcine in fire-clay bodies sixty specimens were fired, and work previously done was recalculated and checked. In the porcelain investigation two firings, a biscuit and a glost burn were made.

STUDIES MATERIALS USED IN SILICA BRICK

Some interesting information as to what the Bureau of Standards has done during the past year in experimenting with brick and allied products is contained in the annual report of the director, which was forwarded recently to the Secretary of Commerce. Speaking of silica-brick the director says:

"An extensive study is under way of the several quartzite rocks used for the manufacture of silica-brick. This investigation deals with the expansion in volume which the materials undergo in firing, the change in specific gravity, and the crystalline transformation of the quartz to cristobalite and tridymite, determined by the microscopic examination.

"As a result of the generosity of an engineering firm, a number of fire-brick of different makes have been subjected to the action of molten slag at a temperature of 1,400° C. The slag was of the composition of one which had seriously corroded fire-brick of various kinds. The tests made succeeded in pointing out the brand of fire-brick most resistant to the slag action.

PROTRACTED BRICK PIER TEST CONTINUES

"The investigation of the strength of large brick piers, which has been conducted during the previous two years, has been confined to brick selected from the important geographical districts east of the Mississippi. The bricks have been classified individually according to the tentative standards recommended by the American Society of Testing Materials. The experimental work of this investigation has been completed for piers constructed from the product of the Chicago and Pittsburgh districts. The work will be continued for the remaining districts during the coming year. This research is being carried on in co-operation with the National Brick Manufacturers' Association."

WORK BEING DONE ON HOLLOW-TILE

Taking up the question of hollow building tile the director says: "During previous years, numerous tests of building tiles from different geographical districts have been made and data is being studied and co-ordinated for publication. In addition, a number of tile walls have been tested under compression and transverse forces to determine the physical laws which operate and the most efficient types of construction, appropriate mortars, best type of bond, the relation of strength to hardness of burn, etc. This investigation will be continued during the coming year. It is hoped ultimately to furnish adequate data for outlining standard methods of testing tile and preparing consistent specifications for the use of manufacturers and engineers."

COST ACCOUNTING *for the* CLAY PLANT

In Which the System is Started Well on Its Way into the Second Half to be Brought to a Close During March, Nineteen-Seventeen

By A. J. Huac

AS A START upon the second or last half of the uniform cost keeping system, parts of which are appearing in these columns from issue to issue, three tables are presented below. They are: Table No. 17—Monthly Balance Sheet; Table No. 18—Time Sheet, and Table No. 19—Labor and Team Distribution.

MONTHLY BALANCE SHEET

Without going to the trouble of an accurate trial balance sheet, such as every business man compiles at least once a year, we make up a monthly balance sheet. One reason for this is to prove the total of line No. 48 on table No. 16 to be approximately correct. It should equal or almost equal line No. 34 of this table.

The items from the ledger or inventory can be used without absolute accuracy being necessary. For instance, on the items of "Accounts and Bills Receivable," we can take the previous month's totals and, by adding the new accounts or bills and deducting those paid, can arrive at the new total. Small errors will creep into totals of this kind but, when

TABLE NO. 17—MONTHLY BALANCE SHEET

Line No.	Post From	RESOURCES	Jan. 1916	Feb. 1916	Mar. 1916	Apr. 1916	May 1916	June 1916	July 1916	Aug. 1916	Sept. 1916	Oct. 1916	Nov. 1916	Dec. 1916
1	T22-8-XIV	Value of Land, Buildings and Equipment January 1												
2	(T22-XIV-15+18+21)	Deduct Depreciation to Date												
3	(1 — 2)	Balance												
4	T20-38	Betterment Since January 1												
5	(3 + 4)	Total Value of Plant to Date												
6	Ledger	Accounts Receivable at Present Value												
7	Ledger	Bills Receivable at Present Value												
8	Inventory	Manufactured Ware on Yard Burned at Cost												
9	Inventory	Manufactured Ware in Kiln Burned at Cost												
10	Inventory	Manufactured Ware in Kiln Burning at Cost												
11	Inventory	Manufactured Ware in Kiln Set at Cost												
12	Inventory	Manufactured Ware in Drier at Cost												
13	Inventory	Clay in Shed Ready for Preparation at Cost												
14	Inventory	Stripping in Pit at Cost												
15	Inventory	Culls on Yard at Present Value												
16	Inventory	Fuel Stock-Digging, Stripping, Drying, Power and Kilns at Cost												
17	Inventory	Repairs, Tools and Supplies at Present Value												
18	T22-XXVI	Credit Account Liability-Insurance												
19	T22-XVIII + XXII	Credit Account Fire Insurance and Taxes												
20	Ledger	Cash on Hand												
21	Ledger	Railroad Claims Outstanding at Present Value												
22	Ledger	Miscellaneous Resources												
23	(5 to 22)	TOTAL RESOURCES												
		LIABILITIES												
24	T22-28	Capital Stock and Bonds Outstanding												
25	Ledger	Accounts Payable												
26	Ledger	Bills Payable												
27	Ledger	Out Freight, Commissions and Discounts Outstanding												
28	T22-XVII, XXI & XXV	Taxes and Insurance Due												
29	Ledger	Miscellaneous Liabilities												
30	(24 to 29)	TOTAL LIABILITIES												
31	(23—30) or (30—23)	Balance Equals Profits and Loss Surplus or Deficit												
32	(31 of Previous Month)	Profit and Loss Surplus or Deficit Last Month												
33	(31)	Profit and Loss Surplus or Deficit This Month												
34	(32—33) or (33—32)	Profit or Loss This Month												

Line No. 34 Should Approximately Equal Line No. 48 of Table No. 16.

it is understood that this table is not to represent definite totals from the ledger, allowance for these small errors can be made.

"Accounts and Bills Payable," and "Out Freight," and so forth, can be taken care of in the same way.

The inventory items can be arrived at quite easily by adding to each department what was received from the previous department, and deducting what was sent on to the next department. Deductions for losses must also be made. It is not intended that an accurate inventory be made every month. This perpetual inventory system would give very good results if properly handled. Every year an actual inventory should be made and the running inventory corrected thereto. There ought to be few corrections needed.

TIME SHEET

This is our form of time slip. It is intended to be punched so as to be used in a pocket loose leaf folder. As we have it arranged, it would be somewhat large for a pocket folder, unless two sheets would be used for each man. It is our intention to have one sheet for each man, and have it arranged so that the foreman can jot down the hours the man works in any department. Practically no plant, except one in which the owner is also foreman and timekeeper, would need on one sheet all of the items which we have listed here. This table can be split up into any number of sheets depending on the scope of the work of any particular foreman.

One advantage of this arrangement is that the division of items is all printed. The foreman can be given written instructions as to how to divide the labor. Another advantage is that if Bill Jones starts at seven in the morning to dig clay and the foreman sends him to the preparing department at nine o'clock, he can jot down two hours in the proper column of the first line. He can do this all during the day and at the end has little work to do.

TABLE NO. 18—TIME SHEET OF.....FOR..... No.....

Line No.		Post From		Post To
1	Digging		One column for each day of Pay Roll Period or Each Day of month.	Add together each day the labor items on corresponding lines of all No. 18 Tables in use for men and post to columns of same number on Table No. 19. Do the same for all tables No. 18 in use for teams and post to columns on line No. 34 of Table No. 19.
2	Power			
3	Preparing			
4	Making Class A			
5	Making Class B			
6	Making Class C			
7	Making Class D			
8	Making Class E			
9	Drying			
10	Setting			
11	Burning			
12	Emptying			
13	Loading from Yard			
14	General Labor			
15	Stripping			
16	Repairs Digging			
17	Repairs Power			
18	Repairs Preparing			
19	Repairs Making			
20	Repairs Drying			
21	Repairs Setting			
22	Repairs Burning			
23	Repairs Emptying			
24	Repairs Loading			
25	Repairs General			
26	Repairs Stripping			
27	Labor and Repairs Stable and Teams			
28	Unloading and Hauling Coal			
29	Betterment Labor			
30	Total	(1 to 29)		
31	Total Hours Worked			
32	Rate Per Hour			
33	Total Pay			
34	Deductions			
35	Net Pay			

Name Dept. No.

No.....

Post Line No. 30 to Regular Pay Roll Book, if one is used.

TABLE NO. 19—LABOR AND TEAM DISTRIBUTION

Line No.	Date	Column No. / Post From		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
				Digging	Power	Preparing	Making—Class A	" —Class B	" —Class C	" —Class D	" —Class E	Drying	Setting	Burning	Emptying
1	1	The totals arrived at by adding together each day the items on each line of all No. 18 tables in use for men and posting to columns in this table of identical numbers.													
2	2														
3	3														
4	4														
5	5														
6	6														
7	7														
8			One line for each day in the month												
28	28														
29	29														
30	30														
31	31														
31A			Add up Cols. IV, V, VI, VII, VIII.										Post 31A to T25-33		
31B			Total of IV, V, VI, VII, VIII.											Post 31B to T25-39	
32			Total Labor. Post Line No. 32 to	T13-8	T13-10	T13-12	T13-14					T13-16	T13-18	T13-20	T13-22
33			Total Pay Roll Equals Total of all Columns in Line No. 32												
34		See top of Table	Team Work, Total Hours.												
34a		T12-7	Average Rate per Hour.												
34b		(34 × 34a)	Total Team Work Each Department												
35		(32 + 34B)	Total Labor and Teams.												
			Post Line No. 35 to	T1-1	T2-1	T3-1	T4-1					T5-1	T6-1	T7-1	T8-1
36		Total of all columns on Line No. 35	Total all Columns Labor and Teams												

In plants having a general stable and in which the work of the teams is varied, it will be found to be of advantage to have a time sheet like table No. 18 for each horse or team. This ought to be done to distribute the costs of feed, and so forth, to the proper department. When the work of horses is constant the proper proportion of the feed and other items can be charged directly to the proper department and the horses considered part of the investment of that department.

We have provided a space for numbering these time sheets according to a time clock or tag system if desirable, in addition to using the employe's name. The loose leaf system in connection with these sheets will be found advantageous because a foreman who has several departments under his supervision can rearrange these sheets daily according to the department in which the men are working. This will enable him to keep the costs easier and with more accuracy.

LABOR AND TEAM DISTRIBUTION

This table is only a form for condensing onto one sheet all of the items covered by the various tables, especially No. 18, in use for men and horses.

Early Rise in N. Y. Commons Announced

New York failed to get brick at $10 a thousand for Christmas, despite the fact that everything pointed that way the forepart of December. Yuletide gifts to eastern builders from manufacturers of buildings materials came in the form of advance notices of price changes upward, however.

Most unusual conditions prevailed in the common-brick market the last week of 1916. Current prices dropped to a range of from $9 to $9.75 with quotations running from $9.25 to $9.50 approximately base for Hudson commons with no quotations for Raritans. On December 23rd there were 3,600,000 brick en route from Newburg and word came that it would in all probability be the last tow down the river from that center. Saturday morning, December 23rd, there were nearly 20,000,000 brick in the market which is not above normal for this time of year.

Some of the barges are covered but they are not being held for speculation as the usual interpretation of the

All labor totals in lines Nos. 1 to 31 to be posted from totals of all tables No. 18 in use for laborers.

Line No. 34 to be posted from totals of all tables No. 18 in use for teams.

XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	XXIX	
Loading	General	Stripping	Rep. Digging	Rep. Power	Rep. Preparing	Rep. Making	Rep. Drying	Rep. Setting	Rep. Burning	Rep. Emptying	Rep. Loading	Rep. General	Rep. Stripping	Labor and Rep. Stable and Teams	Unloading and Hauling Coal	Betterment Labor	TOTAL

Lines 31A and 31B are to be used for columns IV, V, VI, VII and VIII only.

T13-24	T13-26	T13-28	T13-8	T13-10	T13-12	T13-14	T13-16	T13-18	T13-20	T13-22	T13-24	T13-26	T13-28	T13-30	T13-32	T13-34
			Post to T13-6													
T9-1	T10-1	T11-1	T20-98-I	T20-98-II	T20-98-III	T20-98-IV	T20-98-V	T20-98-VI	T20-98-VII	T20-98-VIII	T20-98-IX	T20-98-X	T20-98-XI	T12-1	T20-95-XVI	T20-95-XXXVIII

word "covered" implies because there is more money to be made by barge owners in leasing their boats to railroads to help them relieve the freight congestion than there is in tying up barges in anticipation of a possible advance in brick prices toward the end of the season. The steamboat companies announced to the wholesale brick jobbers that there would be another advance in the rates governing the transportation of brick from the yards along the Hudson to the retail market. No date has been set but the notice is given in order that architects and contractors may protect themselves on new figures running into the first quarter of 1917 and is justified by the increased cost of coal and labor, according to the steamboat companies. This indicates that brick may not come down much in price for a few months yet.

Second-hand common-brick is selling at $4 a load of 1,500. The snow storm and Christmas traffic put a crimp in the local business the last two weeks and many truckmen who usually cart brick forsook that business in order to cart snow for the city at higher prices. The possibility of considerably higher prices for brick is staring contractors in the face and no more brick are expected to arrive in the market from the Hudson river plants until early spring, unless there should be a spell of unusually mild weather when manufacturers may make a further shipment.

A new hollow-tile price list showing advances for all sizes has gone into effect and the market is active.

* * *

New Pittsburgh Building Code Being Written

It is believed that the new building code for Pittsburgh will lean more to hollow-tile and brick construction than to concrete. There is keen rivalry existing between the two forces and hot words are passing between the factions that are endeavoring to get the ear of the code commission. The enacting of new building laws will be a blessing for the public at large, inasmuch as there has been too much shoddy building and too little effort on the part of building officials to uphold what laws are now in force. Architects and contractors in general would welcome a change in building methods.

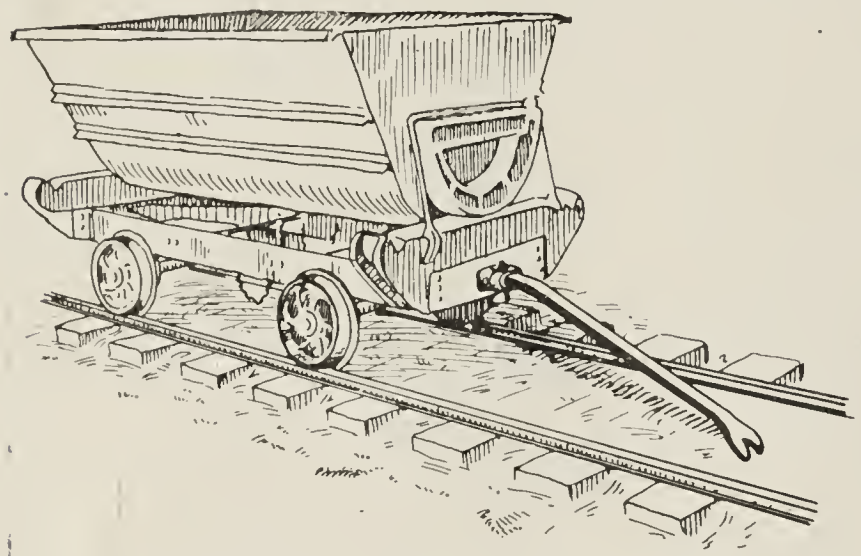
The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

When the Cable Breaks

Preventing a wreck when the cable breaks, or the coupling, pin or hoist fails, is the mission of the bent, forked rod attached to the clay car shown in the accompanying drawing.

The need for such a safety device on those plants hauling their clay in cars up an inclined track by the drum and cable method is very great. It is entirely possible that an accident of some kind may occur just when the



Bent and Forked Rod Attached to Rear of Clay Car as it Ascends Incline, Ready to Prevent Mishap

car is high up on the incline—high enough to take a rapid and disastrous trip down, should the cable break unless some means have been provided to prevent its so doing. The result of such an occurrence is usually a heavy loss in time and equipment. Usually the car itself is destroyed, a piece is removed from the steam shovel or personal injuries are suffered by the workmen, as an outcome of the runaway trip of the loaded clay car which was released when high upon the incline.

To prevent a loss of this kind, use has been made on one plant of a rod which is forked at one end, with a hole for a pin at the other end. The method of operation is simple. When the clay car has been filled and is ready to be pulled up the incline to the discharging platform, that end with the hole is inserted in the rear couple and held by a pin. The forked end drags on the ground between the rails. Should the cable break or any piece of equipment fail when this attachment is on the car it will, instead of rushing down the track at a perilous rate of speed, be immediately stopped by the forked rod, which digs into the ground as soon as the car starts backwards.

When the car has reached the discharging platform, it is dumped, the rod removed and thrown into it, and the return journey made. When the car reaches the pit again ready to be filled the rod is once more fastened to the coupling and the upward haul made in safety.

* * *

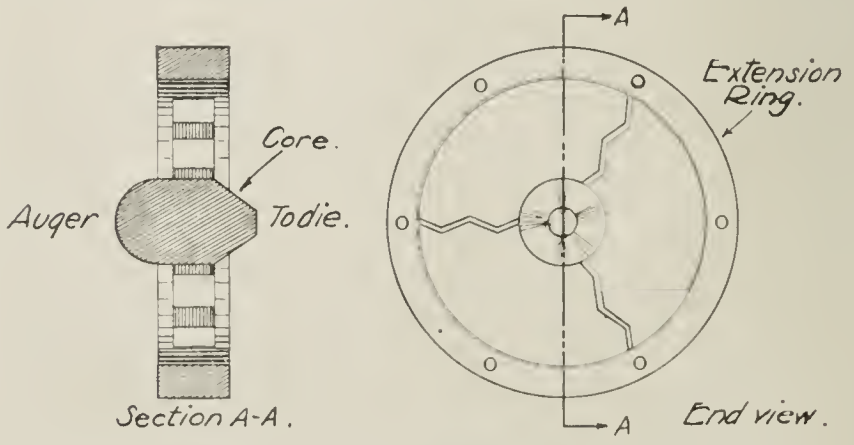
Choker Extension Bridge to Stop Lamination

Our readers will undoubtedly remember the symposium recently conducted on the subject of lamination in which several plant managers, superintendents, ceramic engineers, and others interested in eliminating this difficulty from the manufacture of stiff mud clay products gave their ideas of what constituted the best methods for effecting a cure. The great interest that was aroused by this symposium is indicated by the letters that have been received concerning this subject and by the comments that have been made upon it.

A letter containing an additional thought regarding the elimination of lamination was recently received from Cleve Hartzell, the superintendent of a large clay plant in the Middle West, whose remarks should be especially interesting to the superintendents of paving-brick plants.

According to Mr. Hartzell, lamination is a disease which originates as the clay passes thru the auger and the die, in the following manner: While going thru the auger machine the outside of the clay body travels the fastest, but as soon as the clay strikes the die, the action is reversed, the friction of the die holding back the outside of the column while the center flows on ahead, thus causing a tearing apart of its original structure. In order to overcome this differential in the flow of the inside and the outside, it is necessary to check the flow of the center of the column.

The author of this contribution has found the best method of checking the center flow to be that of using a special style bridge or extension ring, such as is shown in the accompanying illustration, which is bolted to the machine between the augers and the die, and which contains a choker, shaped like a large egg and supported in the middle of the barrel by three corrugating spider arms which are fastened to the wall of the ring. This device will effectively check the center flow of the column and the shape of the corrugators over which the clay must pass is such that a rough surface is produced upon



Sectional and End View of Extension Ring Containing Choker Designed to Stop Center Flow of Column and Reduce Lamination

the clay that facilitates its knitting together before reaching the die. A further accomplishment of the choker die, revealed by practical application, is that it exerts a pressure upon the clay as it comes from the augers and unites the rolls of clay that would ordinarily get to the die separately.

The bridge may be placed as near the augers as may

be desired, but enough space must be left between the bridge and the die to allow the clay ample room in which to unite after passing over the corrugator arms.

It is a good practice to use a clay that is well tempered and run it thru the machine in as soft a condition as possible, according to Mr. Hartzell. Wet-pans are often found necessary to assist in the preparation of a stubborn clay, and a certain amount of grog added to the pug is often a good tonic.

First Aid on Clay Plants

There are many risks accompanying the work on a clay products manufacturing plant. In the majority of instances, few or no protective measures are employed by the owner, in which case the danger to employes reaches its maximum. On the other hand, certain plants are models of safety, every possible preeautionary device being employed to prevent accidents, but even then there is the ever-present possibility of mishaps. Altho they may be the result of extreme carelessness on the part of the workmen, it is the moral duty of the company to administer aid as soon as possible in case of personal injury, and while waiting for the physician. In many cases, the application of first aid may mean the saving of a life.

In order to do this properly, it is necessary for the company to have on hand a complete first aid cabinet from which it can draw at any time the needed medicine, bandages, splints or whatever may be required. A complete list of the articles that should be included in a cabinet of this kind, a list that has received the endorsement of both Illinois and California, is as follows:

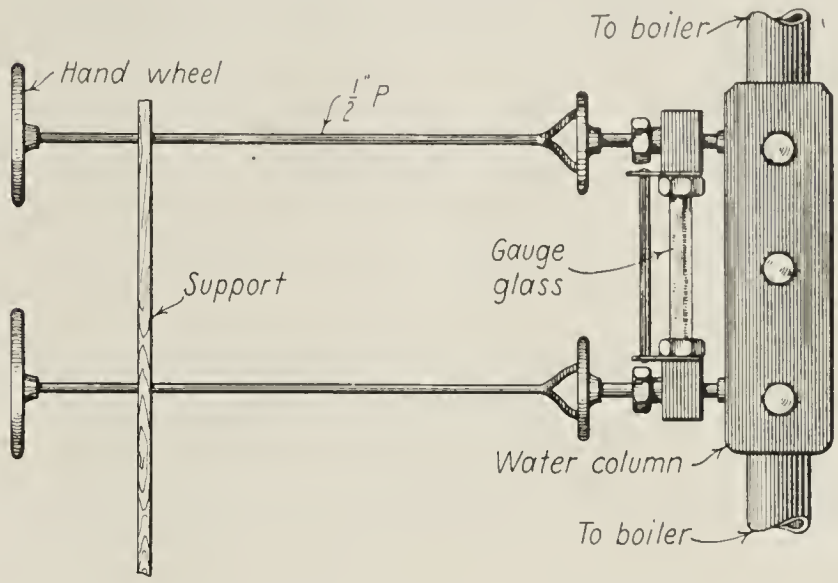
Two first aids for wounds; two burn-dressing tablets; two ounces of lint; four one-yard pieces of plain gauze; two one-quarter pound packages of absorbent cotton; one spool of zinc oxide, one inch wide and ten yards long, to be used as a plaster; four one-inch, eight two-inch, and six two and one-quarter-inch gauze bandages; six two-inch and six two and one-quarter inch muslin bandages; one bottle of antisceptic solution; one bottle of aromatic spirits of ammonia; one jar of carbonated petroleum; one turniquet; four splints; two papers of safety pins; one pair of scissors; one tweezer; and one first aid book.

Besides a fully equipped cabinet, certain members of the different crews should be trained as to the proper course to follow in case of an accident so that, immediately upon the occurence of the mishap, not only will the medicine and materials be ready for use but there will be some one on hand capable of using them. The first aid book referred to above is included in many of the specially prepared first aid cabinets and is also separately obtainable. It gives valuable information regarding the use of the different medicants and generally includes diagrams and photographs showing the proper manner of applying a bandage, or taking care of a broken bone until a physician arrives, and many other items of extreme usefulness when an accident occurs on the plant.

A Boiler Room Safety Device

A very practical safety device for use on the gauge glass, is shown in the accompanying illustration, and is the idea of an enterprising southern clay plant superintendent. Its object is to protect the fireman from becoming scalded when he attempts to close the hot water and steam valves of the water column when the gauge glass breaks. Without some similar attachment it is a very difficult and dangerous task to close these valves, since the hot water valve is usually directly in the line of falling scalding hot water and the steam valve at the top is quickly enveloped by escaping steam upon the breaking of the gauge glass.

With the attachment shown in the drawing, however, any danger of this character is completely obviated, inasmuch as the long rods attached to the hand wheels extend far enough from the water column to be out of the danger zone. Their construction is simple, the rods being forked at one end and attached to either the spokes



By Use of the Extensions Shown In the Above Drawing, Your Fireman Is Protected From Hot Water When the Gauge Glass Breaks

or the rim of the gauge glass valve hand wheels. The length of these rods is determined entirely by local conditions. If necessary, they may be extended thru walls or partitions. In all cases, however, some support must be provided.

Many years of practical application has been attended by successful operation on the plant from which the idea emanates, which is a good indication that the apparatus might well be adopted with profit by many other plants as a valuable part of their boiler room equipment, capable of saving the fireman from a hot bath in case the gauge glass breaks.

Increasing the Life of Pugmill Blades

From a large clay products factory in Iowa comes a valuable suggestion regarding the construction of pugmill blades. Due to the very character of the work these machine parts perform, they are worn down rapidly and must be renewed very frequently. It naturally follows that, if any economy is to be effected at this point in the plant, it must be in the use of a blade that may be purchased at about the same price, but which will wear longer than those ordinarily used.

On the plant from which this suggestion has been received a blade has been devised that will out-wear by far those found in ordinary use, and which can be had for about the same price as is charged for the others. The knives have been made of chilled instead of wrought or cast iron, with steel shanks cast right into the body of the blades. A knife made in this manner has been found to wear about twice as long as the ordinary blade and, in reality, is little if any higher in initial cost.

Marketing The Product Department

was omitted from this issue because of a lack of space.

It Will Appear Next Issue.

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The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

THE SANDS OF 1916 have been spent, and Father Time once more reverses the glass so that the gradual passing of the oncoming year may be recorded, giving us an opportunity both for reminiscence of the tremendous records that have been left by the outgoing, and speculation as to what the incoming twelvemonth may bring. It is not the mission of this column, however, to go over the entire year that has passed and comment upon the things that it has held for the clay products manufacturer. Rather, it is given over to a statement of the manner in which the past fortnight has climaxed the period that has set up new records for industrial activity. Also, to arrest the attention for a moment and direct it to consider the unlimited possibilities for even an increase over the prosperity that has characterized 1916, during the year that is as yet in its infancy.

From all sources, reports are being received that show the activity of the clay products manufacturing industry as continuing almost without a let-up. Few plants equipped to operate thruout the winter, are so much as considering a shut-down, or a winter vacation. As it is, the demand for their products is greater than they can supply by uninterrupted operation. This activity is not limited to any one section of the clay industry, but rather is felt by manufacturers of every division, located in practically every part of the country.

DETROIT 1916 ACTIVITY LIKELY TO BE ECLIPSED

It is almost useless to call attention at this time to the enormous business of Detroit brick manufacturers and dealers during 1916. The whole country has kept its eye on Detroit—the city of wonders. And the world knows that Detroit has been unusually prosperous during that year—not alone in the automobile business, but in practically every line of endeavor. This has been especially true of the building industry, which, of course, has a great effect upon the condition of the brickmaking industry. The records left by 1916 have shattered those that preceded them, and there is every indication that 1917 is to be even a better year. Dozens of new building companies have organized to operate in the coming year, and many large schools, office buildings, commercial structures, theaters, factories and apartment buildings are scheduled for construction during that period. The automobile companies and one of the railroads will spend in the neighborhood of $25,000,000 for new buildings alone. Think of what this is going to mean for the brickmaker. During the last nine months, it has not been a question of "how many brick can we sell, but how many can we make, and get?" The high prices for common-brick seem to have had no effect on the placing of orders by contractors and



builders—the demand by owners being that the projects be rushed to completion regardless of the increasing cost of materials.

This, of course, is a more general statement of the activity that has obtained for several months past, and that which is to come. However, a gradual decline, due to the advent of cold weather, can be noted in the number of new operations started during the last two weeks, which is characteristic of conditions thruout the country.

STORMS AND WALL STREET HINDER N. Y. BUILDING

In New York, similarly, the building market has been affected by inclement weather and storms, which have brought on a state of lethargy. Also, a tightening of capital has been felt, due to the effect of the unsettled conditions of European politics upon Wall street, which has held building in abeyance. Prices for Hudson river brick are remaining practically stationary, between $9.00 and $9.50 a thousand, and what is presumed to be the last shipment of the season was received at the New York docks during the week of December 23rd. This consisted of fifteen barges. No other arrivals are expected until spring unless unexpected developments take place that make it advisable for the manufacturers to make shipments. An active market for hollow-tile has obtained at this metropolis and prospects for 1917 are exceptionally bright.

Albany, Troy, Schenectady, Gloversville, Utica and Syracuse all report unprecedented building activity during 1916, and show large gains over 1915. The outlook at these points for 1917 operations is reported as brighter than for some time, and many contractors are of the opinion that the increased cost of materials will have little effect on the immediate future.

YEAR CLOSES WITH SUPPLY LOW AT NEWARK

Following the prices quoted in New York very closely, those of building materials in Newark, N. J., are now at an unusually high level. Brick has been quoted at $12 during the past fortnight at this point, and promises to remain very close to that figure thruout the winter. Few dealers have any quantities on hand, and none will be able to offer anything like the supply that will be needed before navigation opens in the spring.

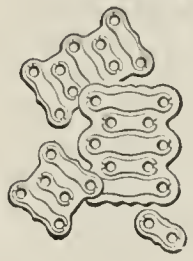
Building activity continues at Philadelphia but, with the advent of winter weather, few new operations are being started. The total of construction, however, for 1916 far exceeds that of the preceeding year, and altho building materials are very high in price and deliveries slow and uncertain, permits already taken out indicate that this activity will extend far into 1917.

EMBARGO HURTS CLEVELAND'S ACTIVITY

Heavy orders for burned clay building materials are still being sold in Cleveland, where the last few months of 1916 made a most spectacular rescue of the building record for 1916, and placed what promised to be a subnormal year ahead of many of its predecessors. An embargo has recently been placed upon practically all building supplies and materials by the railroads at this point, resulting in a tie-up of many operations, since the supply of material at the warehouses has been almost exhausted.

Things are rather quie' with the clay products manufacturers of Louisville, Ky. Bad weather, the holiday lull, difficulty in obtaining coal and an embargo on most of the roads leading out of that city have compelled the trade to play a waiting game and look forward to bet-

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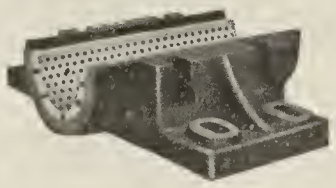


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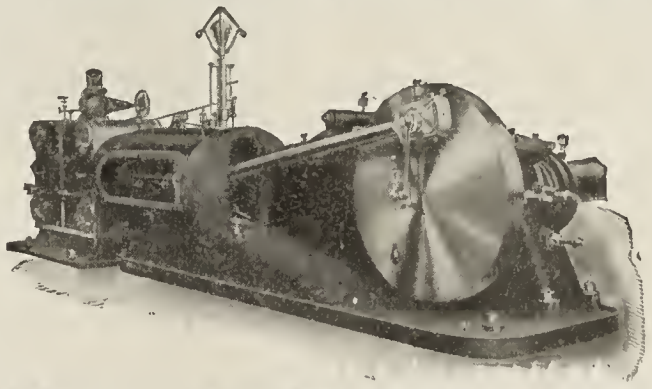


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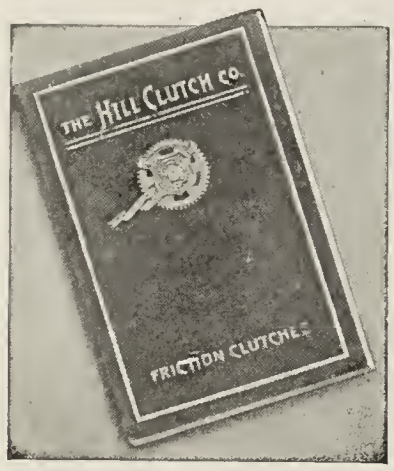
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Yours truly,

Walter D. Elmore
"The Babbitt Metal Man"
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PITTSBURGH, PA.

ter things in 1917. Practically without exception, however, manufacturers and dealers are enthusiastic about the total volume of business done during 1916, and with equal optimism they look forward to a heavy business during the coming year.

"BEST IN SIX YEARS" AT SPOKANE

Possibly no better testimonial to the condition of business in the Far West could be produced than a statement made by Charles P. Oudin, manager of the American Fire Brick Company, Spokane, Wash., which manufactures fire-brick, building-brick and hollow-tile. Among other things, Mr. Oudin stated that an increase of fifty per cent. had been made in the amount of business done by his firm during the past year, and, were it not for the car shortage, the increase would have been considerably more. Also, that building has been better at this point during the past year than it has been for six years, and the offices of architects are full of completed plans, promising a very active period to come.

Seasonal rains during the past few weeks have held up considerable construction work in California, but in spite of this, the amount of work now going on is greater than has been the case for the past few years. Clay products manufacturers and dealers are looking forward with expectancy to a huge amount of building to develop in the spring, the total cost of which will be enormous. Sewer-pipe, hollow-tile, terra cotta and building brick are all enjoying a heavy demand, and the prices for these commodities are remaining very firm.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

J. J. Nesch of the Pittsburg (Kas.) Paving Brick Company, who has been spending almost his entire time at the plant at Pittsburg, visited Kansas City, Mo., during the holidays. Mr. Nesch reports that his factory is working to capacity.

There is joy in the household of William B. Wreford, manager of the Detroit Brick Manufacturers' and Dealers' Association. The reason—a bouncing baby boy, christened William Baxter Wreford, Jr., arrived the day after his great grandfather celebrated his eighty-third birthday.

F. W. Bryson, formerly superintendent of the Hydraulic-Press Brick Company's plant at Porter, Ind., recently accepted the position of superintendent of the large plant operated by the Arkansas Brick and Tile Company, located at Malvern, Ark.

H. J. Huiskamp, manager of the Buffalo (Kas.) Brick Company, visited Kansas City, Mo., during the Christmas holidays. Mr. Huiskamp reports that the company is very busy working on large orders, its sales department succeeding in keeping abreast of the plant's capacity.

F. W. Funke of the Twin City Brick Company, St. Paul, Minn., was recently placed in charge of a new employment



bureau established by the St. Paul Association of Office Men. This bureau was formed for the purpose of obtaining competent help for members and finding employment for those out of work.

W. A. Fay of the Cuyahoga Builders Supply Company, Cleveland, Ohio, and W. T. Rossiter of the Cleveland Builders Supply Company are members of a committee appointed by builders' supply interests to safeguard the lien law now on the Ohio statutes. A report of this committee will be submitted to the trade soon after the first of the year.

Maurice B. Greenough, consulting engineer for the National Paving Brick Manufacturers' Association and instructor in highway engineering at the Case School of Applied Science, Cleveland, spoke on "The Real Source of Trouble in Brick Pavements" before Section D of the American Association for the Advancement of Service, New York City, December 28th, at the Automobile Club of America building.

G. W. Thurston, secretary of the Western Paving Brick Manufacturers' Association with offices at Kansas City, Mo., is now making the necessary preparations for the approaching annual meeting of that organization, which is scheduled for January 19th and 20th at Kansas City. The annual election of officers will then take place. The manufacturers will also discuss ways and means for the coming year.

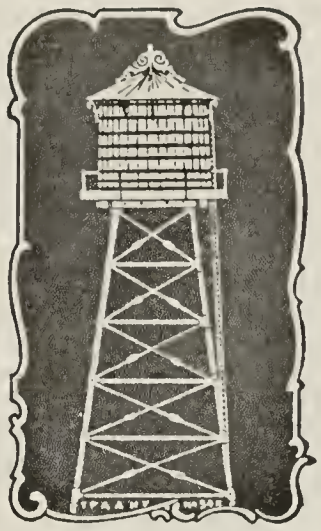
Emmet Howard, salesmanager for the Claycraft Brick Company, Columbus, Ohio, left early in January on a three-week trip of southern cities to visit agencies and to investigate building conditions in that section. His tour will include Lexington and Louisville, Ky., Nashville and Chattanooga, Tenn., Birmingham, Montgomery, New Orleans, Mobile, Pensacola, Tampa, Jacksonville, Atlanta and other centers.

It was with a feeling of regret and heartfelt sympathy to the family that word was received recently of the death of W. C. Stephens, president of Stephens Brothers and Company, manufacturers of clay products at Stephens Pottery, Ga. Mr. Stephens was a pioneer manufacturer of clay products in the South, having organized in 1861 the company of which he was head at the time of his death. During this period, which extends over a half-century, Mr. Stephens built up an enterprise that ranks high among those of similar character south of the Mason and Dixon line. J. H. Stephens, who has also devoted his life to the manufacture of clay products, succeeds his brother as president of the company.

Arizona

Preparations are under way for the formation of a company to develop the extensive clay deposits at Douglas, Ariz., on the property of the Queen Copper Company, the promoter of the enterprise being D. N. Darling of that city. According to an estimate made by Mr. Darling, it would take approximately $50,000 to properly equip a clay products manufacturing plant, and with this in mind, he has already enlisted the assistance of the local chamber of commerce and has been assured that a large portion of the capital necessary could be raised in Douglas. It is probable that the new company will be formed during the early part of January.

A force of men have been put to work repairing the plant of the Alhambra (Ariz.) Brick and Tile Company, which was recently taken over by T. M. Harwood of El Paso, Texas, and according to present indications, the plant will be in operation some time during January. Mr. Harwood is a brick manufacturer of wide experience and is already the



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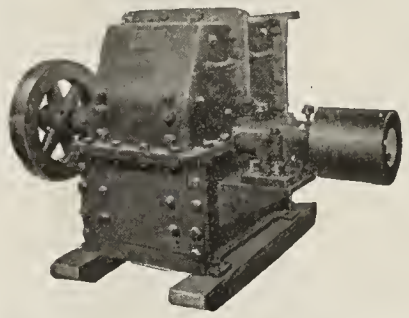
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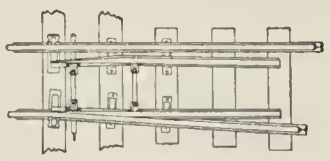
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owner of three plants in Old Mexico, located at Torreon, Monterey and Victoria. Common-brick, pressed and face-brick, hollow building tile and drain-tile are to be manufactured at the Alhambra plant, which is equipped with one continuous and three down-draft kilns. In 1911 this plant was taken over by a company incorporated under the name of the Alhambra Brick and Tile Company and about $110,000 were expended in improvements, but operations were abandoned early in 1914.

California

The California Pottery Company at Oakland is having its large plant entirely overhauled in preparation for extended operations the coming year. A deep well has been dug to furnish water used in manufacturing and all the buildings are being whitewashed inside. Certain minor improvements are also being made in the machinery.

The California Brick Company, located at Niles, Cal., will soon begin improvements designed to greatly increase the capacity of its plant at that point. Two plants are at present being operated by this company to their fullest capacities but are unable to supply the heavy demand made for their product, which consists chiefly of fire-brick.

The Steiger Terra Cotta and Pottery Company, San Francisco, Cal., is making the architectural terra cotta for the new Carnegie Library at Sacramento, a $14,000 job. Another contract just signed by the company is one to furnish terra cotta for the new Josephine County Court House at Grants Pass, Ore. This job calls for terra cotta to the value of $13,000. The company is also supplying terra cotta for an addition to St. Patrick's Seminary at Menlo Park, Cal.

A permit for the formal organization of the Magnesite Refractories Company, with a capital stock of $200,000, has been issued to that company at Porterville, Cal., by the state commissioner of corporations. Work is to be started at once on the construction of a calcining plant to have a daily capacity of one hundred and twenty-five tons of ore. Fire-brick, it is reported, is to be the chief product of the new concern. Harry L. Doyle, manager of the company, is authority for the statement that the output of the plant for the coming year has already been contracted for.

Colorado

The Golden (Colo.) Pressed Brick Company announces that it will soon commence improvements and enlargements at its plant that will increase the present capacity about 120,000 brick a month. Among the improvements to be made are the construction of two new round down-draft kilns and the erection of a large smoke stack.

Connecticut

A number of families were made homeless as the result of a fire at the plant of the Wilson Brick Company, Windsor, Conn., early in December. A large workmen's building valued at about $15,000 was burned and many of the occupants were not even able to save their clothing. The destitute were cared for by the people of the village.

The North Haven (Conn.) Brick Company has about finished its work for the season. Business has been good. The number of brick made is not known, but it is understood that the output exceeds any which has been produced heretofore. Nearby sales absorbed practically all the plant's capacity so that it is in position to dispose of all the brick that can be made at the opening of the new season.

The demand for brick is still taxing the capacity of the



many Connecticut brick yards and builders are bidding so strongly for the product that sales are recently reported as high as $15 per thousand. As a result of the continued call for this commodity a number of the brick manufacturers in Berlin and vicinity are installing steam driers to enable them to continue work thru the winter. Patent carriers for transporting the brick from the machine to the racks also are being put in at several yards.

The Stiles Brick Company, North Haven, Conn., has closed a good season. The demand for brick in New Haven has been heavier than in several years past and this has kept the North Haven yards running to capacity. About everything has been cleaned up and few brick are left in the stock piles for the beginning of the year. The capacity of the Stiles plant may be increased, if circumstances permit. Much depends, of course, upon the probability of increased business next year.

Idaho

The Heyburn (Idaho) Brick and Tile Company has begun work clearing ground for the new clay products manufacturing plant which it is about to construct at Burley, Idaho.

Illinois

The capital stock of the Meacham and Wright Brick Company, Chicago, Ill., has been increased from $50,000 to $100,000.

Astrid S. Rosing of Chicago, Ill., (middle name "Service") has found the growing demands of her business so great as to necessitate the association of others with her in a new corporation to be known as Astrid S. Rosing, Inc.

M. Heckard and Sons, brick manufacturers of West Canton, Ill., are at present at work upon an order which, when completed, will amount to fifteen or twenty million brick, all of which are to be used in the construction of factory and warehouse buildings at Chicago. The plant operated by this firm is working to capacity on this order and intends to run thruout the winter.

As soon as the weather permits building operations to progress, constructional work on the plant of the Hillview (Ill.) Brick and Tile Company will be started. Offices have been opened by this company in the Ayers building at Jacksonville, Ill. The land near Hillview purchased by the company contains clay that has, by many and severe tests, proved exceptionally adaptable to the manufacture of terra cotta, porcelain ware, china, floor-tile, and other high-grade ceramic products, but at the beginning, the plant will manufacture only face and enamel brick. The proposed factory is to have a capacity of 50,000 to 60,000 brick a day.

The ninth plant of the General Refractories Company, the main offices of which are located in the Trinity building, New York City, was placed in operation at Joliet, Ill., on December 5th, just four months after the ground had been broken for its construction. To celebrate the record-breaking time in which the plant was erected, a banquet was held at the Blackstone hotel, Chicago, by the company. According to officials of the concern, the materials entering into the construction of the new plant were the best obtainable, permanency of service being the predominating consideration. The factory is electrically equipped thruout, and every modern device for the prompt and economical handling of the material has been installed. The daily capacity of the plant will be 75,000 silica brick, in addition to the special shapes made. Three

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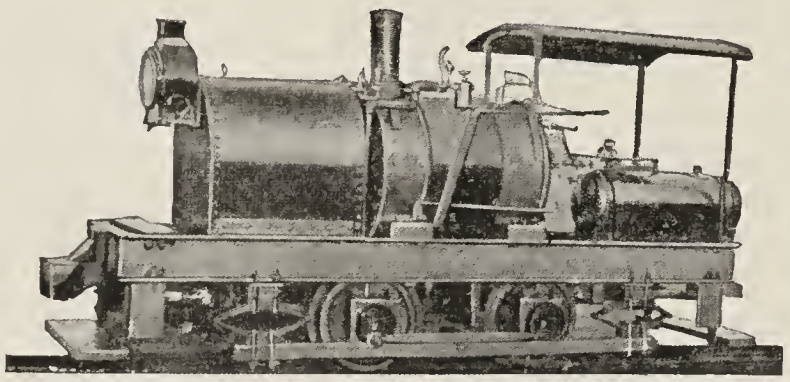
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hundred men will be required in the operation of the plant, which is so arranged that ground space available and track facilities will permit the duplication of buildings and other equipment, making possible the addition of other plants that are contemplated.

Indiana

The Natural Products Company, according to its secretary and treasurer, John B. Rice, has about completed its large new plant at Shoals, Ind., and present indications are that it will be placed in operation about the first of the new year. J. C. Stillwaugh, who for many years was associated with the Hamilton County Brick Company of Hamilton, Ohio, is superintendent and manager of the company's plant, and plans to make it a model in every respect. Edward Barrett, state geologist of Indiana, is president of the new company; Adolph Levy, vice-president, and Mr. Rice, secretary and treasurer. The board of directors consists of the aforesaid parties and August M. Kuhn, Dr. Oliver E. Hawn and George A. Weidely.

Iowa

Fire recently swept the plant of the Des Moines (Iowa) Clay Company, destroying the boiler room, a drier house and a portion of the machine room. The loss, it is estimated, will amount to several thousand dollars. The origin of the fire is as yet unknown.

An increase in the capital stock of the Tom Green Brick Company of Sioux City, Ia., from $100,000 to $150,000 was recently announced by an amendment to the articles of incorporation filed in the office of the county recorder.

Kansas

The plant of the Pittsburg (Kas.) Paving Brick Company has been working to capacity during the past several months. Orders are filed for future delivery far in advance of possible production, it is reported.

Kentucky

J. P. Clarke of Powell and Clarke, engineers at Ashland, Ky., has completed a survey at Morehead, Ky., for the Gilmore Brick Company of Pittsburgh, Pa., which will establish an extensive plant at that place.

The Coral Ridge Clay Products Company, Louisville, Ky., in spite of handicaps in the way of the car shortage and the present embargoes, is closing the best year in its history, according to James T. Howington, general manager. The company has been paying a good deal of attention to hollow-ware and has done a capacity business in this line.

Maine

A Maine state charter has been granted to the Portland (Me.) Cement and Brick Manufacturing Company. The officers of the new corporation are E. P. Swasey, president; I. B. Wheelock, treasurer, and William Henry, clerk.

Massachusetts

The Worcester Brick Company is the name of a new Massachusetts corporation which was formed by citizens of Worcester and which received its charter on December 15th. The capital stock of the company is placed at $60,000. The officers of the newly formed concern are: George L. Baldwin, president; Frank H. Robson, treasurer and clerk, and Isaac McLean, director. All are residents of Worcester.

Dyer Brothers, brickmakers of Greenfield, Mass., have just



closed a successful season. The yard was open longer than is usual in this section of Massachusetts, which afforded the concern an opportunity to get out one more burning of brick. The yard has operated to capacity all summer and sales have been sufficient to clean out practically all the stock in hand. The company operates one machine at its yard, which is situated close to the Connecticut River railroad, and shipping facilities are, therefore, good. Brick have sold as high as $12.50 in Greenfield this summer and fall, and prices are now very high. It has been quite impossible for the company to satisfy the increased demand during the season which is now about closed and have any brick left with which to open the next season.

Michigan

"Nature as a drier is too slow and unreliable, when the demand is greater than the production," writes D. Willis Mason, brick manufacturer of Detroit, Mich., and consequently the ensuing month will see the installation of an artificial drier at his plant. Mr. Mason reports a business for both brick and hollow-tile that is way ahead of that of previous years, with a most rosy outlook for 1917.

The Rapid Service Face Brick Company, Ltd., of Detroit, Mich., has been organized with a capital stock of $100,000, of which $10,000 has been paid in in cash. The stockholders are Harold W. Holmes, Frederic B. Stevens and Ralph Spencer. These men are three of the best known in the local brick industry, Mr. Holmes being formerly with the Puritan Brick Company, Mr. Stevens at the head of the Frederick B. Stevens Company and Ralph Spencer, manager of the Dresden Brick Company. All are equal shareholders.

The Detroit (Mich.) Brick Manufacturers' and Dealers' Association has completed its miniature brick house, with lawns, trees and everything that goes to make up a complete structure in connection with the permanent building exposition at the Builders' and Traders' Exchange on the fourth floor of the Penobscot building. Miniature furniture, pictures on the walls, a tiny bath room, and other interesting details have been supplied, and the display makes a distinct hit with the grown-ups as well as the children. It shows what can be done with brick.

Missouri

The Hydraulic-Press Brick Company, Kansas City, Mo., has been very busy at its plants near that city during the past few months. The factories have not only been working to capacity, but the movement of the plants' output stored at the numerous yards has been tremendous.

Brick manufacturers in the vicinity of Kansas City, Mo., were expecting some relief from the car shortage situation and the coal problem, both of which have been somewhat seriously affecting business. However, the fact that the Interstate Commerce Commission has enforced new rulings governing the cost of demurrage has not brought the expected relief. Demurrage has been increased on a sliding scale basis so that cars held for one week will cost fourteen dollars and every day thereafter five dollars each. This new ruling, it was thought, would provide plenty of cars for all businesses, but the brick companies do not believe that it has aided transportation facilities to any great extent, and so far, the coal mine operators report the new cost of demurrage has not had the desired effect of providing more cars for that business. Thus, the cost of coal is still extremely high, adding greatly to the cost of producing brick.



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—and that isn't all, either, for "Marions" do the work better and cheaper than any others, and with a more uniform mix of shale.

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The barrow slides if you want it to. The hind legs do not rip and catch on obstructions.



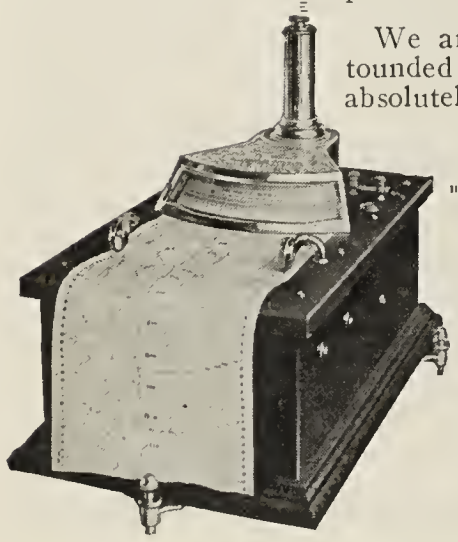
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Montana

The thirteenth and last kiln of the year was recently burned by the Fromberg (Mont.) Pressed Brick and Tile Company, closing a year of unprecedented activity. Approximately 4,000,000 common and face-brick have been manufactured during the year, which have found a ready market in Montana and Wyoming. As a mark of appreciation of the excellent and loyal work of the employes, it was decided at a meeting of the directors and stockholders, held to discuss the year's business, to divide the sum of $1,385 between those who had worked continually for ninety days since the plant opened last April.

New Jersey

At a business session and banquet to be held January 17th at the Elks club house in Perth Amboy, N. J., members of the Middlesex Clay Miners' and Manufacturers' Association will make an effort to bring about increased activity for the coming year.

M. B. and L. B. Gardner are among Hackensack's oldest brick manufacturers. They have been in business a great many years and some of the largest buildings erected in and about Hackensack during the past few years have been of this firm's brick. It is finishing up the season with sufficient orders on hand to dispose of the remainder of its stock.

The American Hollow Tile Company of Hightstown, N. J., recently organized, has acquired the brick plant of B. H. Reed and Brothers, and will commence the manufacture of brick and hollow-tile in the very near future. Additions will be made to the present factory which will include, among other things, the installation of a new conveying system. Robert W. and William J. Lyle of New Brunswick are promoting the company.

Edwin Schmultz, a brickmaker of Hackensack, N. J., is well satisfied with the business he has done in 1916. Few years in the past have been more prosperous and sales the past year have exhausted his stock. His brick ranks among the best made in this vicinity, and while he is not a large manufacturer, his trade is growing, and with as much demand as he now has, he will have to increase his capacity or else will be unable to fill orders. One or two large builders always specify Schmultz brick for their work.

The Homestead Brick Yards, Inc., Homestead, N. J., employs from forty-five to fifty persons. The yards are located just outside of Jersey City whose 300,000 inhabitants create an active market for the product of a good many yards. The clay is gathered just back of the kilns and is obtained by dredging thru the mud which covers the Hackensack meadows at that point. The company is now burning its last kilns of the season and reports a good sale for everything it has had to offer this year. Many of the buyers come out from Jersey City and take the product away in trucks but most of the brick is shipped by rail. A siding runs directly into the kiln sheds, eliminating one handling for which most makers have to provide.

The Hackensack (N. J.) Brick Company has wound up the most prosperous season in its history. Organized a few years ago by a number of prominent men in the county, with George W. Brewster as manager and Hon. William M. Johnson, formerly assistant postmaster general, as one of the principal owners, the company has been unexpectedly prosperous ever since. The activity this year has been remarkable and sales have at times exceeded the output. This company has filled a number of large orders the past year and has a number of more important ones for the coming season.



It is talking of additions to its plant this year to enable it to keep up with the growing business. Few brick companies in this vicinity have done a better business during 1917 than this one.

At the Singac Brick Company, Little Falls, N. J., it is reported that the season has been active and profitable. This plant is located only three or four miles from Paterson and much of its product is used at the last mentioned point which necessitates but a short haul. In numerous instances the finished brick are taken away by motor trucks. When running to full capacity from seventy-five to one hundred persons are employed at the plant, but the labor shortage this summer has disturbed arrangements there as well as elsewhere. A good many buyers take their brick away themselves. The clay pit is easily reached and expense of gathering and transportation to the molding machinery is small. Paterson is growing so fast that the yard's products are easily disposed of close to home.

Mountainview, N. J., is a good deal of a brick town. It is a small community about thirty miles from New York on a branch of the Erie railroad and the Delaware, Lackawanna and Western road. Three brick firms have developed a good business there, the Enterprise Brick Company, employing thirty persons, the Standard Brick Company with forty-five hands and Richard E. Schaefer who has forty-four people at work. This year all of the yards would have increased the number of their employes if they could have obtained the men, but help was scarce. Munitions plants at Haskell near by took all the available men, and brick yards were up against a labor scarcity most of the season. Some changes are to be made at these plants in the future, but with such shipping facilities as they possess and with the inexhaustible deposits of clay which are a part of these yards, their output should increase. Each firm operates one machine and the product goes wherever it can be sold. Newark takes a considerable part of it and other near-by localities take more. The brickmakers find no difficulty in selling all the ware they can turn out.

New York

Fire of an unknown origin recently destroyed Post's Brick Yard at Glen Head, L. I., causing a loss estimated to be between $40,000 and $50,000, the greater part of which was suffered thru the destruction of the brick-making machinery. The kiln shed and stables were saved. This plant was operated by Jotham Post and was one of the largest brick manufacturing plants in the East.

The Building Material Men's Association of Westchester county, N. Y., will hold its fourteenth annual dinner at the Biltmore Hotel, New York City, on January 20th. The following committee will manage the affair: George H. Kapp, Mount Vernon; Hugh McDonald, Scarsdale; John F. Mahlstedt, New Rochelle; Albert See, Pleasantville, and Frank M. Carpenter, New Rochelle.

A large tract of ground, formerly occupied by the J. J. Mandery Company, building supply dealers of Rochester, New York, was transferred recently to the American Clay and Cement Corporation for a consideration said to be $100,000. The property consists of about four and one-half acres on which are three large warehouses, stables, automobile garages, brick sheds and an office building. The new owners are already occupying the property, which, according to John E. Maher, vice-president and general manager of the corporation, is one of the best equipped supply yards in the United States.

Avoid Annoying, Costly Leaks

in the boiler room, or on any flanged pipe line or connection in the plant carrying steam, hot or cold water, etc., by the use of

JENARCO Sheet Packing



A gasket of Jenarco placed between any flanged joint will make that joint absolutely and permanently tight. No escaping of steam, no damaging or costly leaks, no annoying dripping of water. Obtain through your regular dealer, either in gaskets cut to exact size and shape required, or in sheets 36 in. wide, any length required, all standard thicknesses.

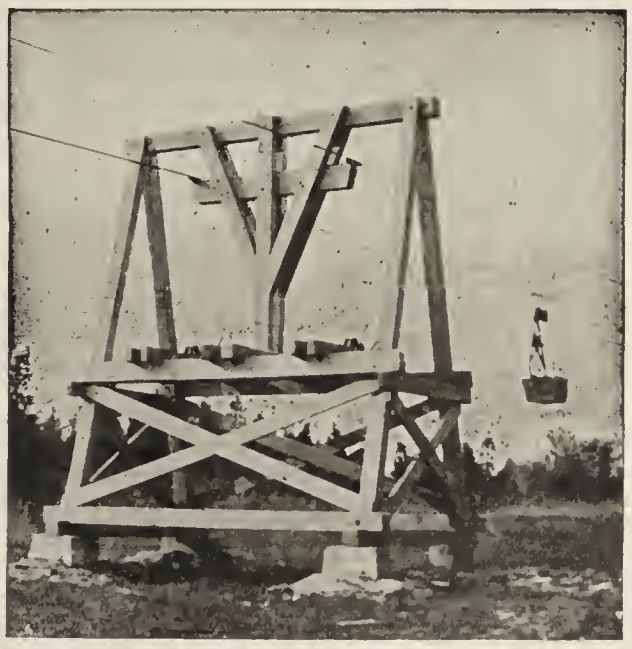
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If the Grade is Sufficient— Gravity Supplies All of the Power



B. & B. Friction Grip Aerial Tramway

requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low. Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

BRODERICK & BASCOM ROPE CO.

New York ST. LOUIS, MO. Seattle



The New Sewer Pipe Truck

Differently designed—built better than ordinary—with the same care, the same skill, and of the same excellent materials of which we have long designed and built Toronto Machinery, from Sewer Pipe Presses to Dry Pans and Wheelbarrows.

This Pipe Truck is built in 3 different sizes. No. 1 handles 18", 20" and 24" pipe. No. 2 handles 27", 30" and No. 3 handles 33" to 36" pipe.

A post card request brings to you our descriptive matter.



The Toronto Foundry & Machine Co.

Toronto - - Ohio

It will save from 1 to 3 men according to size of pipe

HOTEL CUMBERLAND

NEW YORK, Broadway at 54th Street



Broadway cars from Grand Central Depot

7th Avenue Cars from Penn'a Station

New and Fireproof

Strictly First-Class

Rates Reasonable

Rooms with Adjoining Bath
$1.50 up

Rooms with Private Bath
$2.00 up

Suites $4.00 up

10 Minutes Walk to 40 Theatres

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HARRY P. STIMSON
Formerly with Hotel Imperial

Only New York Hotel Window-Screened Throughout

Ohio

A charter has been filed with the Secretary of State for the Cambridge (Ohio) Brick Company, which is to be organized with a capital stock of $10,000 by H. C. Callahan.

Three thousand employes of clayworking companies in the Portsmouth (Ohio) district were granted a ten per cent. increase in wages, becoming effective January 1st.

The Keener Sand and Clay Company of Columbus, Ohio, has been incorporated with a capital of $10,000 to manufacture fire-brick. The incorporators are: Harry A. Keener, Albert H. Schory, Jr., P. Knowlton, E. T. Spiers and Ada Galloway.

The Robinson and Sons Sewer Pipe Company of Uhrichsville, Ohio, has been incorporated with a capital of $1,000 to manufacture sewer-pipe. The incorporators are: H. E. Andress, W. E. Young, C. G. Wise, G. B. Motz and R. I. Moore.

It is now decided that a new brick and tile manufacturing plant, to cost approximately $40,000, will soon be constructed at North Baltimore, Ohio, by W. W. Lewis, who operated the tile plant at Hoytville, Ohio, recently destroyed by fire. Mr. Lewis and his associates will finance the enterprise to the extent of $25,000, the other $15,000 being raised from stock subscriptions in North Baltimore.

Charles Harrison of the Gaddis-Harrison Brick Company, Columbus, Ohio, says trade is a little quiet, as is usual during the holiday season. He is of the opinion, however, that the year 1917 will be a good one, as many new buildings are being projected. He says: "Prices are becoming stronger right along and there is every indication of a good demand for all kinds of brick and clay products during the year 1917. The tone of the market is satisfactory."

According to the annual report of the Columbus (Ohio) Chamber of Commerce, the year 1916 has been a prosperous one in every respect for the "Buckeye" capital. But this is especially true of building operations which have been the biggest in years. President Caples in his annual report shows that much activity was displayed in building lines and that prospects for the coming year are usually bright. Many new buildings of all kinds have been projected.

The Barkwill-Farr Company, Cleveland, Ohio, has advanced the price of 5x8x12-inch construction tile $5 per M., to take effect the first of the year. The increased cost of materials and fuel shortage is given as the cause. In spite of higher prices, the demand for all the products of this firm continues, and the only difficulty is obtaining enough labor to deliver the material. The East Ohio Gas Company shut this firm off from its supply of natural gas, and it is now using coal.

Embargoes on many railroads have hindered the shipping of brick and other clay products to a large extent during the past fortnight. In fact, manufacturers in Ohio are now having their troubles with traffic matters as it is impossible to make deliveries. The car shortage is growing worse instead of better, and above all, congestion at junction points is holding up shipments. Motive power on most railroads is not adequate to the situation. This, coupled with embargoes, is causing shippers many worrisome hours.

The Claycraft Brick Company of Columbus, Ohio, reports the best business in the history of the company during November. On one day orders were received for 988,000 brick, of which 250.000 will be used in building a high school at Petersburg, Va., and the same number for an apartment house at Lansing, Mich. In all, orders were booked for 3,100,000 brick during the eleventh month of the past year.



Business naturally fell off in December, but the records are ahead of those for the same month in 1915. The prospects for 1917 are the brightest in years, according to E. C. Howard, salesmanager.

"Fultonham-Texture," "U-Tex," and "Ful-tone" are the trade names that have been chosen by the Fultonham-Texture Brick Company of East Fultonham, Ohio, Carl C. Walters, general manager, to designate the varying textures and shades of face-brick made at its plant. The first of these names specifies a brick upon which the vertical scoring, altho perceptible, has been practically eliminated; the second, one upon which the vertical scoring has been made very pronounced; and the third, a mixture of edge-set, flashed shale brick which includes a full range of color.

The Ironclay Brick Company, which has offices in the Ruggery building, Columbus, Ohio, has closed a contract to sell the entire output of the Conard-Hallwood Brick Company, a new concern of Columbus. The output during the present year for the last-mentioned concern is estimated at 15,000,000 wire-cut common-brick and hollow-tile. The concern has a new plant in the north end of Columbus with a twenty-chamber continuous kiln. Plans have been completed for the building of another twenty-chamber continuous kiln at this plant, together with the making of a number of other improvements.

The most significant recent development in the Cleveland (Ohio) district in connection with the clay products industry is the acute fuel situation with the turn of the year. During the last few days in December this was alleviated somewhat by a rise in temperature. No improvement in the car situation has come, however, and coal is at a premium. To add to this, the East Ohio Gas Company, which has been supplying manufacturing plants with natural gas, predicts that to cut off the gas supply from these establishments will throw thousands of workers out of employment. Most of the brick plants in the territory served by this concern have changed over to coal, but their predicament is not lessened. So far, no clay products plants have shut down.

Pennsylvania

An unusually large order was recently received by the Sharon (Pa.) Clay Products Company, which called for fire-brick to be used in the construction of ten new hot tin mills to be erected at the Farrel (Pa.) Works of the American Sheet and Tin Plate Company.

Employes of the Union (Pa.) brick plants were granted an increase in wages, which became effective on December 1st. Under the new schedule laborers will receive from $2.25 to $2.50 a day. Several hundred men are affected by the change.

A frame building at the brick manufacturing plant of William Sankey and Son, South Twenty-first street, Pittsburgh, Pa., together with an electric motor and other machinery, was recently destroyed by fire of an unknown origin. The loss has been estimated at about $5,000.

Reports are current that Houstan Brothers' Company, Pittsburgh, is endeavoring to secure a clear title on some land near Kittanning, Pa., on which it will build a brick and tile plant. The tract contains about one hundred acres. If the deal matures the company expects to spend about $200,000 in the erection of an up-to-date clay products factory.

The Staunton Clay Products Company is a newly incorporated concern of Pittsburgh, Pa., organized for the purpose of manufacturing brick, tile and other clay products. The charter, now in the hands of the state department at Dover,

Resolve Now—

To reduce the cost of your fire insurance—
To protect your plant from a disastrous fire—
To eliminate theft and vandalism—
To insure your personal contentment every night after leaving your plant.



These resolutions will be easy to keep if you will equip your plant with the

Hardinge Watchman's Clock

And you will have a year of greater freedom from worry—of surer profits, too, than you have ever known before.

Other clay plant owners have already adopted our suggestion and they are filled with joy. We will gladly give you their names and let you write them direct. Anyway, consult us.

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Approved by National Board of Fire Underwriters

THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

have again proven their merits

NOTE what this satisfied customer says:

"It gives us great pleasure to state that by the use of our Thwing Pyrometer Equipment, we were enabled to save in fuel alone, during six months, more than enough to pay for the installation and the equipment of same twice over, to say nothing of the satisfaction of knowing at all times just what heat we had in our kilns and improved quality of our product. In other words, your pyrometer has far excelled any hope that we had dared to entertain."

Further information on request. Send for copy of latest General Catalog, No. 8.

Thwing Instrument Co.
3336 Lancaster Ave. PHILADELPHIA



The Pyrometer With a Conscience

None Other Than Beighlee's

There are so many good and sufficient reasons for this descriptive name that it is impossible to list them here.

Suffice to say that it is always, constantly accurate, due primarily to the big dial, the high internal resistance and the compensating error device.

The Beighlee is chosen by the men who know, because they know it is best. Have you our new catalog?



Beighlee Electric Co.
Cleveland, Ohio

Herman A. Holz, Hudson Terminal Bldg., New York. Representative in New England States.

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —the **dependable brand.**

Write for circular and prices.

The Roessler & Hasslacher Chemical Company

100 William St. New York

Chicago, Ill.
East Liverpool, O.
Cleveland, O.
St. Louis, Mo.
Kansas City, Mo.
Philadelphia, Pa.
Boston, Mass.
New Orleans, La.

We carry a complete line of high grade chemicals for the clay industry

Del., calls for a capital stock of $300,000, and names the incorporators of the new company as Corry H. Fory, Newark, N. J., L. R. Cunningham and M. J. Dain of Pittsburgh, Pa.

A new company has been organized at Kittanning, Pa., under the name of the Kittanning Ceramics Company, to manufacture brick, tile and fireproofing. With the property purchased, the plans completed and the buildings now under construction, the plant is expected to be ready for operation in the early summer. H. L. McNees, who for a number of years has been associated with the Kittanning Clay Manufacturing Company, is general manager of the new company.

Rhode Island

Frank E. King, Robert H. Matthews and William F. Leonard, all of Providence, R. I., have incorporated the Providence Brick Company for the purpose of manufacturing and dealing in brick and other building materials.

Tennessee

The Tennessee Railroad Commission has issued an order restraining the Nashville, Chattanooga and St. Louis Railway from putting into effect a new tariff on brick in intra-state transportation. The new tariff increases rates on brick, but by order of the commission, has been suspended until January 14th, when it will come up for consideration.

Texas

The Thurber (Tex.) Brick Company recently joined the Western Paving Brick Manufacturers' Association. This company has a large and well-equipped plant at Thurber, Tex., and reports that it has been working the limit during the past three weeks, having a large business booked ahead of production.

The construction of a large soft-mud brick manufacturing plant has been started at Beaumont, Texas, by J. J. and H. J. Schneider, at present owners of two other clay products manufacturing plants located at Laurel, Miss., and Pearl River, La. Following a period of prospecting that extended over two years, J. J. Schneider located a clay at Beaumont about a year ago which has proved satisfactory for brickmaking purposes. To develop the deposit a plant with a daily capacity of 50,000 brick is to be built and will be in operation by the latter part of February. Later, hollow-tile will be made. Favorable railroad facilities will enable the company to ship its products over a large radius, and even engage in a foreign business, as a ship channel near the plant makes it possible to send brick into Mexico. Motor trucks will be used in the delivery of the brick to local jobs.

Washington

The plant of the Granger Brick and Tile Company, North Yakima, Wash., is being enlarged to provide for a department to manufacture silo blocks.

The plant of the Washington Brick, Lime and Manufacturing Company, near Dishman, Wash., recently suffered a fire loss. A large barn and four horses were burned. The main plant buildings, however, were saved.

The Chehalis (Wash.) Brick and Tile Company has enjoyed a very prosperous year under the present management. Among the larger orders filled may be mentioned the new Federal building at Aberdeen; St. Mary's Catholic school at Centralia, and the new Security Bank building at Chehalis.

The Denny-Renton Clay and Coal Company of Seattle, Wash., has recently furnished the terra cotta for the new



Benson school in Portland. Other orders filled recently are sewer-pipe for the cities of Hubbard and Astoria, Ore., and for Camas and Ilwaco, Wash. The company has also delivered large orders of brick to Astoria.

Wisconsin

About 100,000 enamel-brick, 180,000 special "paver" face-brick and 60,000 ordinary face-brick have been supplied by the Wisconsin Face and Fire Brick Company of Milwaukee, Wis., for the construction of a new skyscraper going up at that point—the Wisconsin Telephone Exchange building. It is interesting to note that, in order to supply the wants of the architects on this building, the Wisconsin Face and Fire Brick Company had a special die made for manufacturing the "pavers," and had it attached to one of the machines of the Toronto (Ohio) Fire Clay Company, which concern made the brick.

* * *

POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

"There is apparently such a shortage for general ware at this time that peace in the great European conflict, were it to come at this time, would have no immediate effect on the pottery trade in the United States," says Charles C. Ashbaugh, newly elected president of the United Potters' Association, and president of the West End Pottery Company at East Liverpool, Ohio.

"I would imagine that the potteries of the East Liverpool district have a sufficient number of orders on hand to keep them in operation for at least the first half of the new year," said Mr. Ashbaugh. "Then, too, it would take the trade considerable time to get caught up. These things would tend to show that no serious effects would be felt in the pottery trade for quite a length of time.

"Altho the orders on hand were not placed conditionally, they are subject to cancellation before shipment if the buyer so elects. There is little likelihood, however, of such cancellations.

"Germany and Austria, if the war were to close at the present time, would still offer the most competition to the United States in the production of pottery products."

WILL FOREIGN COST OF PRODUCTION CHANGE?

"Do you think that the production cost of pottery products in Germany and Austria, were the war to end, would be more or less than prior to the war?" was asked.

"That is a question which cannot be answered. We have no precedent to go by and I doubt if any of us could venture any reasonable guess on that question. Germany is keeping all industrial matters closely guarded, and we have no way of determining whether the wages of her people will go up or down after the conflict."

TARIFF INSUFFICIENT TO PROTECT MANUFACTURERS

"What about the present tariff on pottery imports? Do you anticipate any real harm?" were other questions asked.

"The tariff is certainly too low. It is not sufficiently high to protect the American manufacturer and workman from the European manufacturer and cheap European labor. Had not



A Brick Plant That Is Making Money—



This plant is located in Eastern Pennsylvania—it's a "producer" and it's making good profits for the stockholders.

If that's the kind of plant you want—whether you contemplate new construction complete or partial—consult us.

We build complete plants, improved kilns and dryers, producer-gas fired kilns and dryers, and do all other clay plant engineering work.

BRICK AND CLAY ENGINEERING CO.
THOMAS M. WILSON, Manager
5116 Walnut Street (Est. 1900) PHILADELPHIA, PA.



Our Wish for You

That each month of this New Year would unroll for you as perfectly and as flawlessly as a roll of Hettrick Belting.

This wish we know is a worthy one—for we hope for you the best luck in the world. If your luck, your fortune, is as good as we wish it, then it is comparable to a roll of Hettrick belts; for it is full—plumb full—of satisfactory service.

May our wish come true.



Sincerely,

The Hettrick Mfg. Co.

Toledo, Ohio

CLING-SURFACE does the trick every time.

Read these three letters, order a trial tin, give a fair test and YOU will be just as enthusiastic.

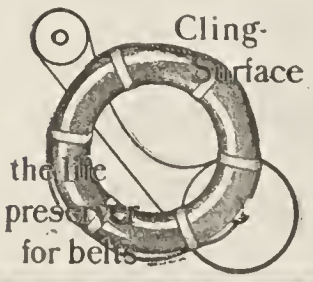


"How am I coming on with Cling-Surface? I am not coming on—I AM on. No slip. No squeak. Running like a top. What more should I want?"

And in the same mail, another: *"Good belt service from Cling-Surface is the best paying investment in our place."*

And still another: *"Cling-Surface caused a 5-in. and a 6-in. belt to take to the center of the pulleys, when before they drove to one side."* (Names on application.)

A trial of Cling-Surface at a few cents' cost will bring you *immediate, marked* and *lasting* belt improvement. Send at least for literature.



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the war come on, the general ware factories would not have been running more than half time. Unless something is done in the way of protecting the American pottery manufacturers and workmen from the cheap cost of production in Europe, the pottery business will gradually go back to what it was prior to the war."

NEED FOR BETTER MACHINERY IN POTTERIES

The opinion is growing among pottery manufacturers, that more machinery or mechanical labor will have to be employed in the American potteries, so that production can be increased. With this end in view, much thought and attention is being given just now to the use of a continuous kiln. It is also pointed out that more mechanical appliances are required in the clay shops, also the decorating shops. The manufacturers are not opposed to employing personal labor, but the situation has reached that stage where it is absolutely necessary that the production of the industry be increased to meet the growing demand for American pottery. There are not enough skilled workers in the pottery industry today, so it is declared necessary, by those in authority to speak, to fully equip all potteries. Whenever an additional kiln is erected so many more workers are required in all departments; when new plants are placed in operation, full crews are required, and just at this time it is impossible to secure steady crews, for they are "not in the woods." The National Brotherhood of Operative Potters cannot bring new people into the trade just when wanted, and many who were skilled potters have left the industry to take positions in other lines of work. This condition is depleting the ranks of the workers, and no new people have come forward in large volume to fill vacancies.

NEW INCORPORATION ACQUIRES OHIO PLANT

A charter has been issued to the Virginian Potteries Company of Charleston, W. Va., the incorporators being W. A. Abbott, Herbert Frankenberger, L. E. Poteet and F. S. Rhodes of Charleston, and L. E. Holderman of New Lexington, Ohio. The company is capitalized at $300,000. The concern will manufacture a variety of products, specializing on high tension insulators and other supplies for electric lines, as well as a fine grade of fireproof cooking ware.

The Virginian Potteries Company will absorb the Consumers Insulator Company of New Lexington, Ohio, and operate both the Dunbar and New Lexington plants, headquarters being maintained at Charlestown. In addition, plans are now being drawn for the construction of a twelve kiln plant, to be erected on a five-acre tract. It is understood that preliminary work will be begun immediately and that the plant will be in operation within a few months. L. E. Holderman, the president of the New Lexington factory, will be in charge of the manufacturing end of the business. F. S. Rhodes, who has recently acquired a large interest in the Consumers Insulator Company of New Lexington, Ohio, will be actively connected with the company in the capacity of secretary.

LABOR AND FUEL ALONE MAR PROSPECTS

Everything points to a continuation of the present unusual conditions in the pottery industry for the first half of 1917, if not thruout the year.

If the potteries were guaranteed an adequate force of workmen at all times, and an unlimited supply of fuel and raw materials, they could come close to maintaining a reasonable schedule of shipping to meet even the present abnormal demand.

But the nation-wide shortage of men, which has so



seriously affected the potteries, will hardly be relieved before the end of the war. Wages in the potteries were recently advanced, by voluntary action of the manufacturers, to the highest average level of any American industry. This was done with the hope that it would fill up the working crews, but in that respect it was a disappointment. The men are not to be had at any price.

This means that until normal conditions are restored production will to some extent be curtailed, and shipments correspondingly slow.

FREIGHT EMBARGO INTERFERES WITH SHIPMENTS

The freight embargo is seriously interfering with pottery shipments from the eastern Ohio district. The Erie Railroad Company, which is operating into the East Liverpool, Ohio, district over the Youngstown and Ohio River Railroad, will accept no freight for points west of Kent, Ohio. The Pennsylvania Railroad Company is taking no freight for points off its own lines. Pacific coast buyers are "crazy" for ware, but are unable to get their cars. The Pennsylvania Railroad Company made a desperate effort to have solid cars of ware unloaded at East Liverpool, immediately after they were packed, but could not "get away with the scheme." It was said the cars were wanted for other purposes. The New England district has been opened with a few possible exceptions, but no shipments for the west are being accepted.

Interesting Notes About Many Potteries

The old William Brunt Pottery Company's plant at East Liverpool, Ohio, has just been sold by Sheriff S. W. Crawford, to satisfy the claims of Catherine E. Creighton against A. O. C. Ahrendts and others. The plant was bought by Olive Clancy, trustee, for the American Paper Products Company for $4,900. The latter company, it is understood, has entered into a conditional agreement with the claimants for the purchase of the plant and a trustee, therefore, bid it in for the purchasers. R. L. Cawood, president of the American Paper Products Company, says that the entire plant will be occupied by the paper products company. Numerous repairs will be necessary and much new equipment will be installed. The new owners hope to occupy the plant by spring.

Only two new dinner shapes will be placed on the market this season by Eastern Ohio potteries, and an oddity is that distinctive and patriotic names have been selected for each. The Knowles, Taylor and Knowles Pottery Company have a new plain shape, possessing distinctive lines, which has been named "America." The Smith-Phillips China Company have a new semi-colonial shape which it has named "Martha Washington." In the former instance, the decorations will be known by numbers, but with the Smith-Phillips Company each treatment will be known by a name—that of a character prominently associated with Colonial history. It is the first time that such a novelty has been introduced in connection with a dinner service.

W. S. Burford, for many years general manager of the United States Potteries Company at Wellsville, Ohio, has resigned and will go with the china and glass importing firm of George H. Bowman and Company, Cleveland, Ohio, occupying the position of general salesmanager for that company. The Cleveland concern is interested in the operation of the Summit China Company at Akron, Ohio, and has recently made a number of improvements at that plant by the erection of additional kilns and additions to the clay

In Your Own Home

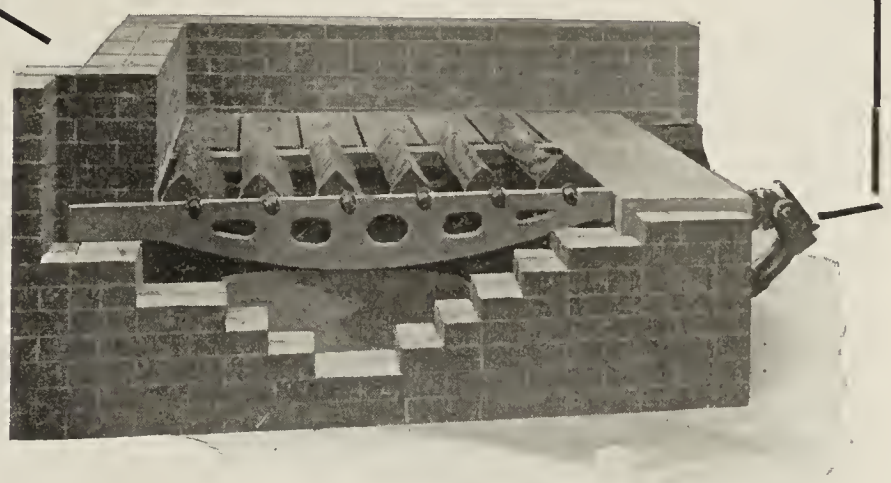
In Your Own Furnace

You Use Shaking Grates

You **wouldn't go back** to the straight grate, the dead bottom furnaces, because it would be hard to keep the fire going good, and impossible to keep it clean and free from clinker.

Will you continue to use in your power plant the type of grates that you have discarded in your home? Why not make us prove that Cyclone Grate Bars will save you money?

Cyclone Grate-Bar Company
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ATLANTIC CITY, N. J.

On the Beach Front **Open All Year**

The Last Addition to Atlantic City's Fireproof Hostelries

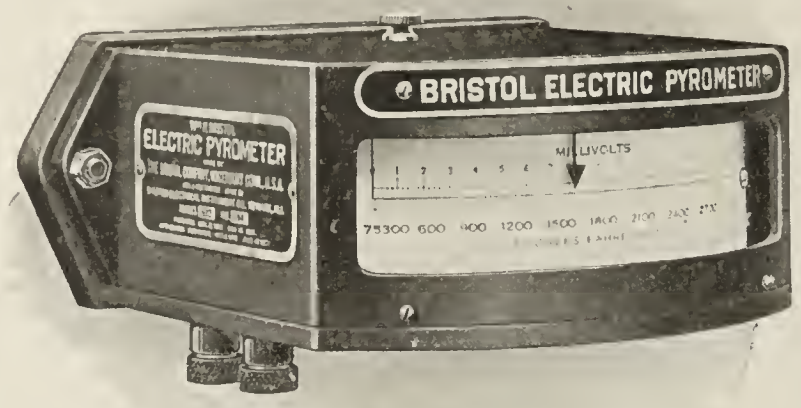
Artistically furnished and modernly equipped. A hotel of charming features and refined atmosphere. The house of service and the home of the epicure. Open air balcony restaurant facing ocean and boardwalk on main floor. Roof garden restaurant overlooking sea, where during season refined entertainment is provided.

Ample private baths with both fresh and sea water, with showers on every floor—surf bathing from hotel.

Unusually extensive lounges, porches and public rooms.

JOEL HILLMAN, President — A. S. RUKEYSER, Manager





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WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

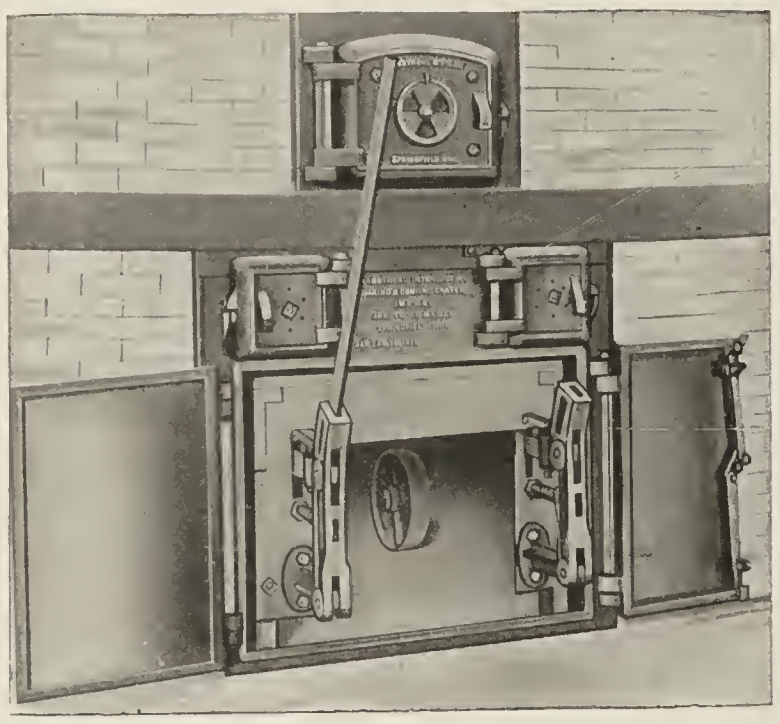
BRISTOL'S
ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. Waterbury, Conn.

Branch Offices: Boston New York Pittsburgh Chicago San Francisco



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

shops. The successor to Mr. Burford at Wellsville has not been announced.

Positive denial was made by William T. McNutt of East Liverpool, Ohio, and the head of the Albright China Company of Carrollton, Ohio, that the Carrollton pottery would pass over to the control of the W. S. George Pottery Company of East Palestine, Ohio. It was planned by the George interests to buy the Albright pottery and make it "Plant No. 4" of their organization. Mr. McNutt announces that his company will proceed with its contemplated improvements, and that the plant will remain under the control of the original owners.

Charles C. Coburn, who has been identified with the Knowles, Taylor and Knowles Pottery Company, East Liverpool, Ohio, for the past three years in the capacity of auditor and office manager, will leave for Cleveland, where he will be connected with the George H. Bowman Company, retailers and jobbers in crockery. Mr. Coburn's resignation has been accepted by the pottery company. Just who will succeed him has not been learned. Mr. Coburn will be auditor and assistant treasurer of the Bowman Company.

Conferences have been held at Sistersville, W. Va., recently, between interests there and Wheeling, W. Va., and East Liverpool men, looking toward the erection of a five-kiln pottery at the first-mentioned point in which a general line of domestic ware would be manufactured. It is said that the financial details will be arranged for this proposition within a few weeks, and that immediately following the formation of the company, plans will be asked for. This will be the first general ware plant in that part of West Virginia.

There is nothing in the domestic pottery industry now that indicates any labor troubles or differences between the workers and the manufacturers for the new year. There seems to be a closer unity between the two bodies. The action of the manufacturers in advancing wages of workers recently has had a far reaching effect. Leaders among the workers point out that the craft is satisfied to a degree with present conditions, but the cry of the manufacturer is for more ware.

The shortage of gas in the Ohio Valley has crippled many potteries, so far as production is concerned, and Christmas pays were not as large as both manufacturers and workers anticipated. Gas companies would not allow manufacturers to light kilns, the former diverting the supply to domestic consumers, who are paying thirty cents per thousand, as against a lower price paid for fuel used for manufacturing purposes.

Final arrangements have been made for the annual pottery exposition, which will be held at the Fort Pitt Hotel, Pittsburgh, Pa., during the month of January. Practically every western pottery will have its lines exhibited, and buyers from all parts of the country visit the house to place specifications for their requirements for the twelve-month period.

Plans have been completed by the Smith, Phillips China Company of East Liverpool, Ohio, to increase their capital stock from $100,000 to $150,000. Improvements to the plant are contemplated which include the erection of additional kilns. The business is to be extended, which caused the introduction of additional capital.

The C. C. Thompson Pottery Company is the name of a newly incorporated concern at East Liverpool, Ohio, organized for the purpose of manufacturing pottery products. The capital stock of the new company is placed at from $100,000 to $150,000.

The building of ten new kilns has been necessitated by the



increasing business of the Buffalo (N. Y.) Pottery Company, which is now manufacturing a grade of chinaware that, before the war, was produced only in Germany and France.

* * *

The Little Schoolmaster's Classroom

Under the above heading—which, by the way, marks a regular department in "Printers' Ink"—there appeared in a recent issue of that magazine a story, the reading of which will repay any brickmaker, particularly if he is not acquainted with what at least one concern is doing in the way of advertising a common, red, sand-mold, soft-mud brick. The article, which is not very long, follows:

ADVERTISING "JUST BRICKS"

This is a story about brick—just plain, common, every-day brick, such as you may see piled alongside any vacant lot where a building is going up, and which are sold—if you believe the brickmakers—under conditions of such ruinous competition that there is mighty little profit in the business for anybody. Be that as it may, it is fairly evident that to the ordinary individual "bricks are bricks" and, aside from the more ornamental varieties, there is little to distinguish one kind from another. Brick fireplaces have been successfully advertised, and the Hydraulic-Press Brick Company has made advertising contribute to the sale of certain grades of brick for fine work, but "just bricks" would hardly appeal to the imagination of the advertising man. This, however is a story which has to do with the advertising of "just bricks," and if some enterprising newspaper solicitor takes it to his local brickyard and starts something—more power to him!

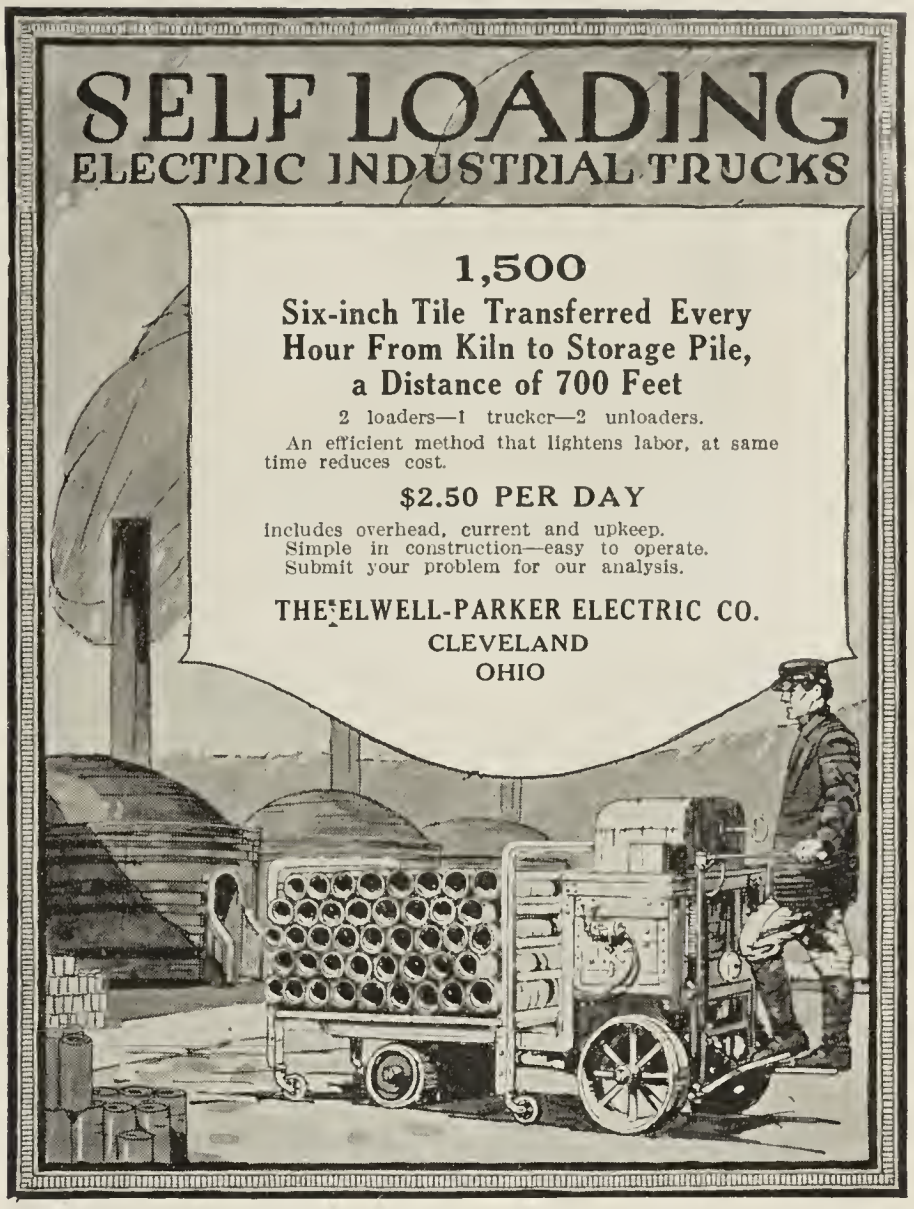
"In 1913," says Robert C. Mitchell, general manager of the Farr Brick Company, Cleveland, "we had a daily capacity of 190,000 common-brick which were selling at an average price of $7. To-day, we have a daily capacity of 450,000 common-brick which are selling at an average price of $8.90 per 1,000.

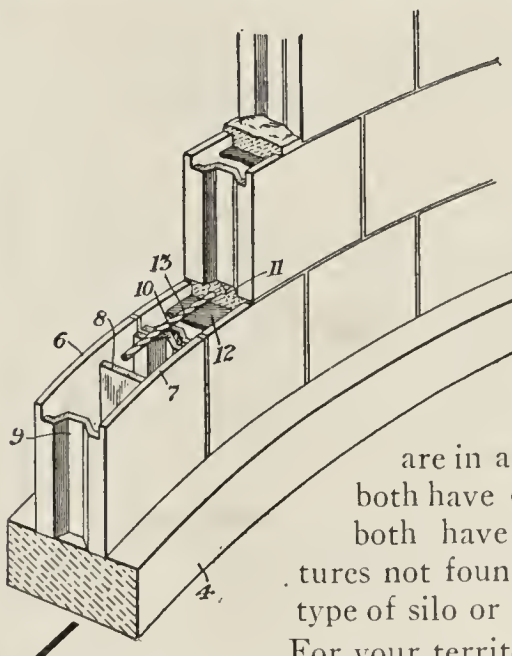
"About two years ago, we sold our selected common-brick, which were taken from the center of the kiln and packed in straw for delivery, at an advance of 50 cents per 1,000 over the regular price of ordinary common-brick. By changing the name of this class of brick to 'Homestead' face-brick, and insisting to the architects that this was the proper material to use in the construction of Colonial buildings, we have succeeded in raising the price to $13 per 1,000, without in any way altering the product or delivery, and our sales on same have increased ten-fold."

So much for the result of the campaign which has centered about the persistent use of moderate space in two newspapers.

TALKING BRICK TO NON-TECHNICAL READERS

But what can you say about the merits of common-brick, particularly when you are talking to the average, non-technical reader of a newspaper? Not much perhaps, yet the Farr people, according to Mr. Mitchell, have contrived to say enough to get their product into the minds of ninety per cent. of the people of Cleveland. In the first place they coined a slogan with stickers all over it like a cockle-burr—"Buy Farr the Best." Then they proceeded to feature that slogan in connection with copy which would catch the eye of the crowd and, at



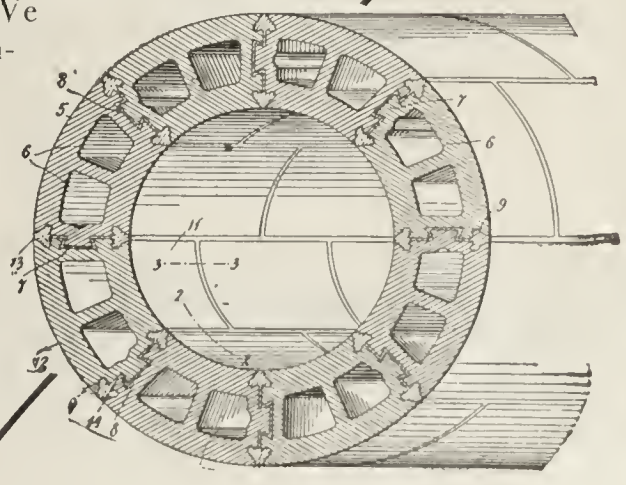


AJAX
Silo and Segment Sewer Blocks

Both of these blocks are in a class by themselves; both have exceptional merit, both have patented features not found in any other type of silo or sewer block.

For your territory these types will produce new profitable business for you. We invite correspondence, looking to the sale of state rights for both blocks.

THE SOUTHERN PIPE AND CULVERT COMPANY
Macon, Georgia



SAY "I SAW IT IN BRICK AND CLAY RECORD"



is a book every brick-maker should have

Your responsibility does not end with the turning out of a first class brick. You should know how to use your brick to show it off to the best advantage.

This book is a complete and clear manual of brick construction, designs and details. It tells what every builder should know of the classification and measurements of brick work, together with architect's drawings of framing for brick houses and the use of brick veneer.

If also tells of the miscellaneous uses of brick, including ornamental brick and tile work, chimney and flue construction, brick fireplaces, brick sewers, cisterns and flush tanks, etc. It tells the builder everything he should know to undertake brickwork and it is so clearly illustrated by details that there can be no uncertainty as to each successive step to be taken.

The designs in this book alone are worth the price.

GET ONE NOW

Price $1.00

Book Department

Brick and Clay Record

CHICAGO

the same time, would please the architect and engineer. Some samples submitted by Mr. Mitchell are as follows:

"Jack Sprat, he built a flat,
His wife she drew the plan.
Between the two, when they were thru
It wasn't worth a d——.

"Profit by the experience of others and employ a reputable architect, engineer or builder."

"A man there was and he built a house,
It was ruined by his erring spouse,
If he had used a brick of test,
It would have been BUY FARR THE BEST."

"Profit by the experience of others and employ a reputable architect, engineer or builder."

"Upon the introduction of our 'Homestead' face-brick," says Mr. Mitchell, "we erected in a very prominent part of Cleveland, at an expense of $11,000, an ornamental brick wall on top of which was placed an animated electric sign outlining our trade-mark and slogan. The wall is further ornamented by the addition of stone benches, drinking-fountain and flag-poles. It is sixty feet to the top of the electric sign and ninety feet to the top of the flag-pole. We received considerable adverse criticism from advertising men at the time we made this expenditure. Our books told the tale—it would have been cheap at twice the price."

In addition to the newspapers, the company uses the local telephone-books and the city directory, and sends rather high-grade novelties at times to architects and builders.

* * *

HOLLOW-TILE FARM BUILDINGS FORERUNNER *of a* NEW ERA

(*Continued from Page* 46.)

floor and which has been made possible largely thru the use of hollow-tile. As before stated, the wall of the barn is eight inches in thickness, but this dimension is varied for a distance of about twenty-six inches every twelve or fourteen feet of wall surface. At these points the outside surface of the wall has been built of four-inch tile and immediately behind this is constructed a column, or "chimney," of eight-inch tile, laid on ends, with the hollow air spaces forming a flue that leads, in one case, to the ceiling of the first floor, and in the other, to the roof.

These hollow-tile "chimneys" are the most vital part of the ventilating system used in this barn. In all, there are twelve of them, six on one side and six on the other. Three of these six are intake chutes, while the other



three are outlets, and they are placed alternately along the walls.

THE CONSTRUCTION OF THE INTAKE FLUES

The opening thru which the intake flues draw the air is made by omitting, for a distance equal to the width of the chute, the outside course of four-inch tile, which is slightly above the level of the first story floor. This leaves a hole about twenty-six inches wide and eight inches high. The first course of eight-inch tile used in the construction of the flue and which is exposed by the omission of the outside course of four-inch tile, is cut on a half pitch, thereby readily providing a convenient entrance for the air into the air spaces of the hollow-tile. The air upon entering these is carried up to the ceiling of the first floor where the hollow-tile opens into a flue, which is made by nailing beaver board under the floor joists, and is carried along under the ceiling to almost the center of the barn.

HOW THE OUTLET FLUES WERE BUILT

The outlet flues, on the other hand, have the half-pitch tile opening into the interior of the barn at the floor level, forming the beginning of a chimney which leads directly to the roof where it opens into flues made by nailing wall board to the roof rafters. These flues extend along the inside of the roof about sixteen feet to individual thirty-six inch galvanized iron ventilators. All others means of escape for the foul air carried thru this outlet is absolutely cut off, since the joint between the hollow-tile and the roof flue is made secure, while the end of the roof flue is also closed by means of wall board. A direct connection is, therefore, made between the ventilator and the cow stable.

THE OPERATION OF THE VENTILATING SYSTEM

The principle of this system is that the air is drawn into the center of the barn by means of the intakes; is pulled down and distributed among the animals thru the suction created by the outlets and drawn up thru the outlets to be discharged by the big ventilators, carrying away in its movement all of the bad odors. The force of this suction was demonstrated on one occasion when the barn was tightly closed and a feather introduced at one of the intake openings. This feather was sucked up thru the intake, pulled downward towards an outlet and sent up and thru one of the ventilators.

BARN IS SANITARY AND CONVENIENT

A sanitary condition and convenience may be credited as being two very notable characteristics of the Barcroft barn. The dry concrete floor and the warm, clean interior are the direct results of the use of hollow-tile. The presence of moisture due to the condensation of water on the inside surfaces of the walls is entirely prevented by the blankets of air that protect the inside wall from the elements to which the exterior wall is exposed. A litter carrier that operates on a suspended track behind the gutters on both sides of the barn greatly facilitates the removal of the animal waste. The feed alley that runs thru the center of the barn leads directly to two immense silos at the south end and, by use of a truck, the gathering and distributing of the silage is made an easy task.

TWO TALL SILOS FURNISH FEED

The silos, of which little has been said thus far, are models of modern silo construction. Both rest upon a

"Ring Out The Old—Ring In The New"

In extending to our many good friends in the trade our hearty and sincere wishes that the New Year may bring you all greater joy and prosperity than you have ever known before, we are prompted to quote the above lines, penned by the immortal Tennyson. They so clearly typify the spirit of the age—

Progress

The Clay Products industry is going ahead with mighty strides because the "new" is displacing the "old." No other industry can show greater progress than this.

And we are proud of the part we have been permitted to take in this work. It is a pleasure to help solve your many problems in connection with Cars and Car Equipment, and we shall continue our efforts during Nineteen Seventeen to serve you well.

With our good wishes we also extend our grateful thanks to all of you who have helped us to establish the "Leadership of Lakewood."

The Lakewood Engineering Co.

Cleveland, Ohio





The Success
of any
Waste Heat Drying System

Depends on the Amount of Heat Taken from the Kiln in a Given Period—the Uniformity of the Heat Flow—and the Power Cost.

You will get Perfect Satisfaction if you Insist that no Other Fan be Used at Your Dryer Except the One that Has for Many Years Been the Old Reliable Standby on Hundreds of Brick and Tile Plants. Insist Always on the

"Sirocco"

It's the Multi-blade Fan that Sucks Through a Maximum of Heat at a Minimum of Cost.

Send for Our Book, "The Brick Dryer." It has a Lot of Valuable Information on the Drying of Clay Products. There is no charge for it.

AMERICAN BLOWER COMPANY
DETROIT MICHIGAN
BRANCHES EVERYWHERE

foundation of concrete eighteen inches wide and eighteen inches deep, sunk into the ground five and one-half feet. One is built of 4 x 8 x 12-inch hollow-tile, while in the other a 5 x 8 x 12-inch tile has been used. Iron rods are employed as reinforcing, being run thru every course in both silos. A concrete roof, widening from six inches at the point of contact with the tile to eighteen inches at the center, forms the cap of each silo.

WINDMILL PLACED ON TOP OF ONE SILO

An unusually interesting feature of one of the silos is the manner in which it is being utilized as a support for a ten-foot windmill that furnishes power to a pump one hundred and fifty-seven feet from the base of the silo. In building the roof of this particular silo, two "I" beams were laid parallel to each other upon the top course of tile. To these beams were fastened the legs of the windmill and the heavily reinforced concrete roof was then made. The beams were completely buried in the concrete and several inches of the legs of the windmill were sunk into it, thus obtaining a very solid foundation for the windmill. By attaching the pumping rod of the mill to a triangle mounted at the base of the legs, and just above the silo roof, and connecting this triangle by means of two heavy wires, one at each outward point, to a similar triangle at the pump, the action of the windmill was transmitted to the pump with little loss of power. In fact, a second triangle is soon to be placed on this same silo for the purpose of operating another pump at right angles to that now in use, to supply water for house purposes.

TILE BUILDINGS ADVANCE AGENTS OF A NEW ERA

In the hollow-tile barn, silos and out-houses on this farm may be seen the "last word" in the construction of farm buildings. They are advance agents of a coming era when permanence, fire-safety, dryness, warmth and beauty will be common qualities in every farm building—properties that are found only in hollow-tile. The day is fast approaching when the farmer will not place the fruits of his entire year's labor in a flimsy frame barn that is the plaything of the demon Fire; when he will refuse to herd his entire wealth of live-stock in a structure that may be swept away at any moment by a conflagration, when he can build at a cost that is but slightly above that of frame, a barn that will be proof against fire and the destruction of time.

* * *

Asks for More Equitable Demurrage Ruling

While Cleveland (Ohio) dealers in fireproof building materials are in favor of the recent decision of the Interstate Commerce Commission to increase demurrage rates in order to expedite the unloading of cars, the situation, so far as Cleveland is concerned, is so complicated by the action of the railroads that strong efforts will be made by "Sixth City" interests to have certain changes effected.

First step in this direction was taken by W. M. Cameron, traffic manager for the Cuyahoga Builders' Supply Company, representing the S. A. F. E. and the Northern Ohio division of the Ohio Shippers' Association, before the Ohio State Railway Commission on December 15th, at its hearing on the new demurrage rates.

Mr. Cameron went prepared to show that the railroads are in the habit of bunching cars on sidings, making it virtually impossible for shippers to take advantage of the "average" rule. He pointed out that what building material dealers in



Cleveland need is a more equitable demurrage ruling. A further hearing on the subject will be held soon after the first of the year.

The Interstate Commerce Commission has approved the ruling and it is expected that the Ohio Commission will fall into line and put it into effect with regard to intrastate shipments. Material interests believe that if a more equitable intrastate demurrage ruling is allowed it will eliminate the "average" rule made impossible by the bunching of cars.

* * *

Material Men Gather Around Christmas Tree

The first goodfellowship gathering of building material firms and individuals in Cleveland, Ohio, was held on December 14th at the Hotel Hollenden. The object was to bring together all branches of the building material trade with the idea of furthering co-operation for the coming spring. This is at variance with the idea that has prevailed heretofore, that fireproof material manufacturers and dealers and lumber interests should "paddle their own canoes" as best they can. By co-operating, all interests are expected to benefit. So successful was this Christmas party, as it was known, that a Washington's Birthday party will be held in February. More than three hundred and fifty persons attended the first affair, which was conducted under the joint auspices of the Builders Exchange, the Building Materials Association and the Cleveland Board of Lumber Dealers.

At the Christmas party E. A. Roberts of the Cleveland Builders' Supply Company impersonated Santa Claus, and distributed presents. W. J. Hurlburt of the Bostwick Steel Lath Company, Niles, Ohio, and his bride, were given a periscope. This was significant in view of the fact they were on a ship last year that was torpedoed by the U-53. They were landed at Newport, R. I., whence they were taken by a United States destroyer which rescued passengers from the wrecked vessel.

Harry McKay of the Hydraulic-Press Brick Company received a Japanese back scratcher. About fifteen presents were distributed from a large Christmas tree.

A contest for the loveliest man was won by Clarence Donley of the Donley Brothers Company. The prize was a sawdust brick which had been hanging from the ceiling all evening.

* * *

An Interesting Compliment to Brick and Tile

When Ballard and Ballard Company of Louisville, Ky., flour millers, undertook a recent bit of advertising by billboard in Louisville, the instructions to the signboard concern was to work up the most attractive decoration possible.

The plan of the display includes a plate glass window opening onto a room built behind the sign board. Passers-by stop, look at the surface of the board and then inspect what is behind the window. The first of the series represented a glimpse of a model kitchen inside a model home. A corner of the house was represented on the board and the big window disclosed the interior of the kitchen. With no detailed instructions from the advertiser, except to make it look "classy," the artists of the sign board concern "built" a brick house, faced with an attractively mottled brick, and the interior of a kitchen—to show that the sign board artists know what is good—was painted to represent white tile.

This is all the more noteworthy when it is known that on the same group of sign boards two lumber and woodworking concerns are represented.



AFTER 14 YEARS

Cork-Insert Pulleys

Still continue to give satisfactory service and eliminate pulley trouble.

Here is what Users say and do:—

A Textile Mill

"Our Cork Insert wood rim pulley is giving us the same satisfactory results after ten years of continuous service, without repairs or replacements, that it did on its first installment."

A Bleachery

"The pulleys with Cork Inserts installed by you 14 years ago (Sept. 1902) have run steadily since and continue to give satisfaction."

A Foundry

"The pulley you refer to is still in place doing the work which it did the day we started it. We have never had occasion to do anything to it and it has done the work in a place where nothing else would."

A Brick Plant

"The Cork Insert Pulley that we installed in 1913 has always given us the very best of satisfaction and since the installation we have not been obliged to touch it. The pulley has the hardest work of any in our plant and has given service beyond our expectations."

As a result of 5 years' experience with a 1400 H. P. drive, a wire manufacturer has just installed two more CORK INSERT pulleys to transmit 1500 H. P. each.

After using CORK INSERT pulleys since 1912, one of the best equipped textile mills in the country has placed orders for 20 additional CORK INSERT pulleys this year.

A large by-products coke oven, whose experience goes back to 1912, has ordered 34 more CORK INSERT pulleys this year.

A pulp and paper manufacturer with eight mills, after five years' experience has just added two more heavy duty CORK INSERT pulleys.

SEND FOR CATALOG showing how hundreds of CORK INSERT pulleys are saving money in many lines of industry.



The Cork Insert Co.

168 Federal St.

Boston, Mass.



—SICK BURNS—

Do YOU Ever Have Any?

HOOK DOWN DRAFT KILN USERS DON'T!

Easy to say, but a joy if you can back it up. **WE CAN.** Nice uniform burns always, with a big percentage **Less** coal than ordinarily used and is **LESS** than the ordinary time—frequently half.

Like everything good, it's simple. The answer can be given in a word—**Distribution.** The heat isn't led to the outside by the shortest possible route, but evenly distributed and held in the kiln, without cutting the draft, as you do when you drop the damper at the stack.

A well-known Ceramic Engineer once said that if he could, he would like to put the damper just below the floor. That is the effect the Hook Down Draft System produces.

In the past five years, many clay-workers have tried it out and like it. Dozens of plants now use this system, many exclusively. It costs only a stamp to investigate. IF IT'S GOOD, YOU WANT IT.

When you write—today—give us the number and size of your kilns, your present burning time and fuel consumption and we can estimate the saving which the **Hook System** can make for you.

HOOK PATENT KILN CO.

614 Commerce Building

COLUMBUS, OHIO

Kiln Bands, Grate Bars and All Accessories

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

A Cheaply-Operated Locomotive

The Bell Locomotive Works, Inc., of 30 Church Street, New York, have been making locomotives for a great many years, and they have produced types that have been considered most efficient. But they have never been content to rest on past performance and have had their engineers experimenting and developing new types in order to keep pace with new industrial demands.

Their latest design is the result of many years of constant experience and study of practically one class of locomotive service, during which they have eliminated many types and designs after thoroly weighing their merits and demerits.

In working up this new design they had constantly before them the fact that they must design a locomotive that could be built in several different sizes, gauges, overall heights, widths, and lengths, without extensive alterations in the power plant and other principal parts. Furthermore, they realized that they must be able to use all kinds of cheap fuels, be able to offer an extremely narrow, short and low locomotive, that it must be smokeless and sparkless, and be simple to operate and of simple, strong construction.

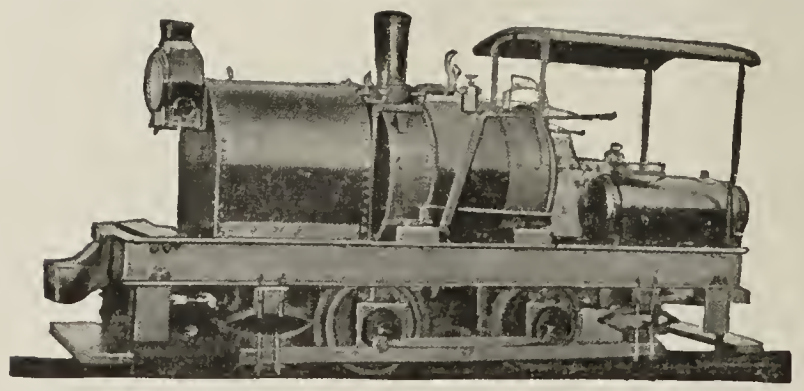
They long ago eliminated the regular type of steam dinkey due to its great bulk, the fact that it could not be standardized, that it required a long time to fire up, that it was not powerful for its weight, nor economical in fuel consumption, but they did not forget its good quality of being reliable and long-lived.

They considered the gasolene and electric types of locomotives, but after considerable experience with the first as made by both themselves and others, they discarded it for reasons too numerous to mention. The latter type unquestionably had merit for certain classes of service, but it could not be employed to advantage in the majority of places.

This new locomotive is a highly refined and standardized steam locomotive. The machinery or engine parts are all confined to one unit so small and compact that it can be installed in the narrowest gauge locomotives. The engine unit includes such features as roller bearings, drop-forged parts thruout and the highest grade material and workmanship, and all working parts are enclosed in an oil tight, dust proof case.

The boiler is of the horizontal type with shell and fire box head of one piece of pressed steel and smoke box head welded in. The shell is wound with several layers of piano wire, thus giving great strength without excessive weight. The tubes are expanded into the front head and brazed into the rear head from the inside of the boiler by a patented process.

The fire is so distributed that it gives maximum heat to the lower tubes and only a comparatively low heat to the tubes above the center of the boiler, or those tubes not under



Latest Design Bell Locomotive, Built In All Sizes From 2 to 14 Tons, and Will Run on Any Fuel



water. In other words, there are tubes where stay bolts are usually employed and this feature gives super-heated steam without the addition of super heaters. There are no stays, seams or rivets.

The boiler plant is extremely compact, absolutely safe, easily cleaned and so designed that all the tubes may be removed and replaced in one unit when necessary in from one to two hours' time. A steam pressure of from 300 to 350 lbs. is carried and at this pressure the factor of safety is at least 10. The boiler may be fired from cold in 10 to 30 minutes, or fired instantly after a one or two hours' stand.

These features make a locomotive that will run on any fuel—gasolene, kerosene, crude oil, coal or wood. One that gives no smoke or sparks when burning kerosene or fuel oil. A locomotive that is built to a standard design, is simple, reliable and compact. May be started quickly and has the speed of the direct locomotive combined with the power of the geared locomotive. These locomotives are now built in sizes from 2 to 14 tons.

* * *

International Clay Machy. Company Announcement

Starting under the most favorable conditions a new manufacturer of clayworking machinery is bidding strong for the favor of clayworkers. Well financed by Boston capital, the International Clay Machinery Company of Dayton, Ohio, is now rounding out the personnel of its organization.

Sometime ago it bought out the patents and business of the late C. W. Raymond Company, but is in no way connected with its predecessor either in personnel or organization or policy. Thus the new organization comes into the field with one of the best built and equipped factories on this continent for the manufacture of clayworking machinery and equipment.

Marketing the best of the machinery evolved by its predecessor, it is now adding a line of wire-cut-brick and hollow-ware machines of most improved design. Furthermore, it is building the Hercules type of soft-mud brick machinery and is sales agent for the Berg Dry Press. It will feature the International Producer Gas and Coal Fired Metallic Radiation Dryers as well as a Waste Heat Dryer of strikingly efficient design.

International has also simplified its predecessor's design of Producer Gas Fired Kilns and is taking vigorous steps to place before the clayworking fraternity International Producer Gas Fired Continuous Kilns at a lower cost for installation, designed to meet each particular plant condition.

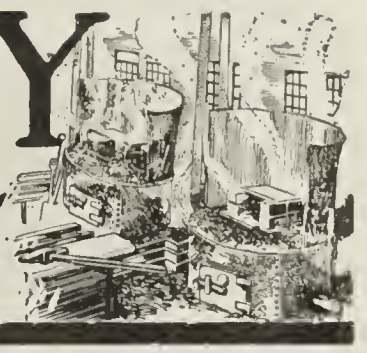
As Mortimer Silverman, general manager of the concern, puts it, "We are in position to equip with most modern appliances either stiff mud, dry press or soft mud plants from the clay bank to the railway cars."

As to the operating personnel of the organization, it promises to be well balanced. The management of the concern is under the direction of Mortimer Silverman, a graduate of the Engineering Department of "Boston Tech." Mr. Silverman has been associated in power and engineernig work for a number of years, and for the past few years has



Factory of the International Clay Machinery Company.—One of the Best Equipped on the Continent

GANDY and Gases



"We are pleased to advise you that the Gandy Belting we have been using for some time in our forging shop has given us excellent satisfaction. We use it in places where it is exposed to the heat and gases in preference to anything else we have ever tried. We would recommend it to anyone being obliged to expose a belt to such conditions."

The gases common to some manufacturing operations and so unavoidable in many plants, are exceedingly harmful to most belting.

This latter shows what action a manufacturer should take when he learns that such conditions are shortening the life and service of his belts.

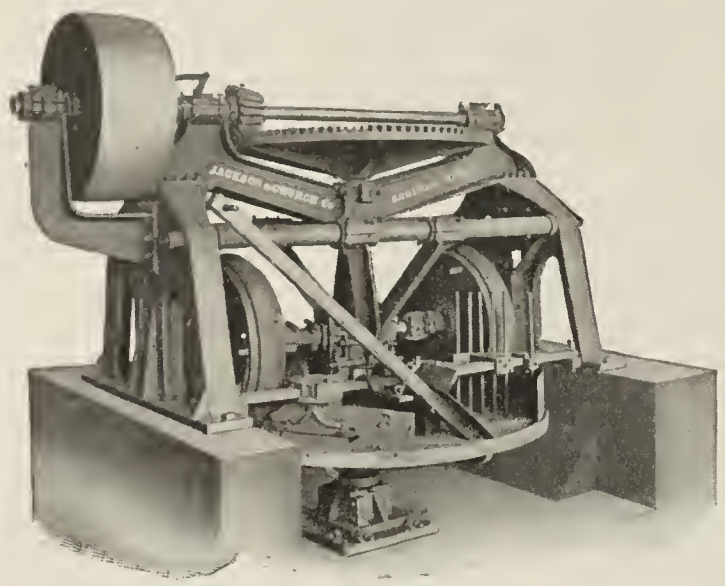
Aside from being advantageous in duties such as this, GANDY Belts are equally superior in conditions where oil, steam, water, heat and dust are encountered.

Gandy Belts in all kinds of belt service, live up to the reputation for dependable service that they have gained in 39 years. They are ready to prove themselves dependable in your work—and save you money at the same time. Prices, samples and full information sent upon request.



The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street





Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

been connected with the financing and management of various public service and industrial corporations.

The sales organization will be in charge of R. H. McElroy, former sales promotion manager of The Cadillac Motor Car Company of Detroit, Mich. Mr. McElroy graduated in ceramics from Ohio State University some years ago, spending six years in the technical and sales end of the clay industry before entering the motor car field.

Joseph Cite, former engineer in the French army and one time associated with Thomas A. Edison, with much practical clayworking experience, will act as chief of the engineering staff.

The new company is featuring "International Service" as their business slogan. Mortimer Silverman states, "International Service means every clayworker will be met on a fifty fifty basis, and an order for equipment will not be considered closed until the customer is satisfied."

The new concern believes that the confidence of its customers is its greatest asset. It, therefore, promises to extend to every clayworker universal service. The use of its engineering and testing departments will be extended to clayworkers and prospective clayworkers who are desirous of testing out materials or preparing plans for new plants as well as the remodeling of present ones.

Asbestos Deposits in Arizona

Large deposits of long-fibered asbestos have lately been discovered in Arizona, in the Sierra Anchas. Heretofore 85 per cent. of the asbestos used in the United States has come from Canada, and therefore the newly discovered deposits of Arizona are of great interest to American manufacturers of asbestos products, particularly those making asbestos sheet packing. The high grade fiber which is said to exist there may permit them, in a large measure, to supply the demand for a high grade American sheet.

The Goodyear Tire and Rubber Company, Akron, Ohio, is an extensive manufacturer of asbestos packing, known as Goodyearite, which is said to be equal to any of the high-grade asbestos packings of Europe.

Economical Handling of Clay and Shale

In most clay plants one of the biggest items of expense is occasioned by reason of methods employed to dig the raw material and transport it to the machine room. Because of this, clay-plant managers will undoubtedly be greatly interested in a method employed by the American Silica Sand and Mining Company of Festus, Mo., inasmuch as it can just as readily be adapted to clay plants.

This company uses a Broderick & Bascom Aerial Tramway, which is approximately 3,000 ft. in length with a fall of about 33 ft. from loading to discharge stations, and which develops a capacity of 50 tons of silica sand per hour.



Broderick & Bascom Aerial Tramway, Showing the Loaded Bucket Approaching the Storage Shed



The tramway is the B. & B. Friction Grip Type, in which the buckets are attached to the pulling rope by means of a patented, improved, screw-type friction grip. As a bucket enters either terminal station it engages a detaching device which automatically releases the grip from the pulling rope, permitting the bucket to be brought to a stop for loading or discharging. On the outgoing side of each terminal station there is an attaching device which automatically reattaches the buckets to the moving cable. Nineteen buckets are used on the line, each holding approximately 1,200 lbs. of sand.

The tramway has nine intermediate supporting towers, and the power for its operation is furnished by means of a steam engine. The track cables are 1⅜ in. diameter on the loading side, and 1 in. on the return side. The pulling rope is 7/16 in. diameter.

The silica rock is blasted down from the face of the quarry, where it is picked up by means of a steam shovel, and deposited into crusher on top of tramway loading bin. Later on, of course, it will probably be necessary to use small surface cars or wheeled scrapers for bringing the material from steam shovel to crusher, but at present the face of the quarry is so close that the steam shovel can load directly into the crusher. From the tramway loading bin the crushed rock or sand is loaded into tramway buckets. At the discharge end the sand is dumped directly into railroad cars. The accompanying photographs will serve to illustrate in a measure the arrangement of tramway loading and discharge stations.



Bucket at the Loading Station

Broderick & Bascom Rope Company, of St. Louis, Mo., also has several aerial tramways operating on clay plants where they have proven a great economy. This is a subject that is bound to occupy the increasing thought of progressive clay plant managers.

* * *

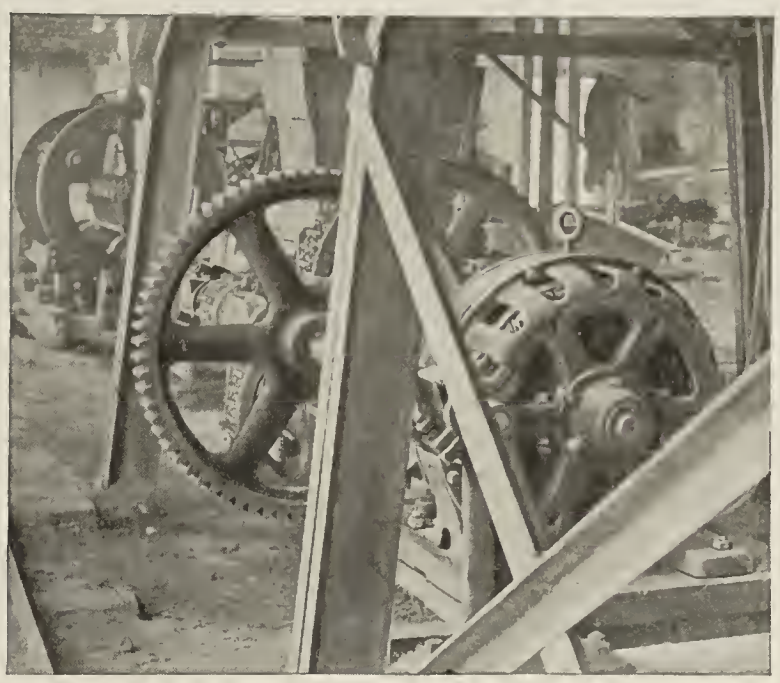
Burning Data

A frank, open statement goes a long way in clearing up possible doubts in the minds of any skeptical clayworkers regarding the Hook Patent Kiln.

On the plant of The Columbus Grove Brick and Tile Company, Columbus Grove, Ohio, the Hook Kiln was installed a few years ago by H. P. Jenks, manager of The Hook Patent Kiln Company, Columbus, Ohio. In response to an inquiry from a client, the Columbus Grove Company write the following letter which needs no explanation:

"In reply to your favor of the 23d ultimo concerning the Hook patent kilns that we have installed at our plant, desire to say that they are most satisfactory. Since learning to operate them we have had better results than we ever were promised or expected.

"Our kilns were formerly of the old fashioned down-draft pattern which we changed to the Hook system. Since this change was made, we have been able to cut our burning time into one-half what it originally took, with a saving in fuel of about forty per cent. In other words we are burning our



Why Motor Drive is Best

No. 2

In brickyards where heavy materials are handled, belt slippage results in reduced average speed and increased repair costs.

Westinghouse Individual Motor Drive

has demonstrated to brick manufacturers the value of proper speed for a given machine.

This speed can be maintained continuously, which results in increased production.

A card to our nearest office will bring full information.

Westinghouse Electric & Mfg. Co.

East Pittsburgh, Pa.

Sales offices in all large American cities.





The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men— in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.20
Brick Drying (English edition)	1.00
Brick Houses and How to Build Them	1.00
Bricklaying, Rudiments of Practical	.60
Bricklaying System	3.00
Brick Work (Walker)	.60
Brickwork and Masonry	3.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	4.50
Clay Glazes and Enamels	5.00
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.00
Clay-Working Problems	1.50
Economies in Brickyard Construction and Operation	1.00
Effect of Heat Upon Clays	2.00
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Glazer's Book	1.00
Hollow Tile House, The	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.50
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.40
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Efflorescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

If the book you want isn't here ask us to get it.

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent import duty.

***Address,* Book Department,**

Brick and Clay Record

445 Plymouth Court, Chicago, Ill.



The Sign Tells the Story of This Motor (Also See Article on Next Page)

ware in from thirty-six to forty-eight hours with an average of about 7½ tons of coal per kiln.

The kilns are 24 ft. inside dimensions, 8 ft. to the crown line and hold about 16,500 4-inch tile. If the kilns are handled as directed they will produce nice uniform, cherry red tile from top to bottom, a very small percentage of loss of any kind. In fact we have emptied kilns in which all of the tile not first-class could be wheeled on one wheelbarrow, this included breakage in handling.

"The kilns are not expensive to build and are nice to fire; one man can take care of two kilns, if the coal is handy, while on full fire, and not be busy over half the time.

"We are highly pleased with the kilns and will recommend them to anyone, for they will produce the results, and that is what we are all after. Very truly, Columbus Grove Brick & Tile Co., Per D. M. Allen."

Another "Chain of Evidence"

Publication No. 15 has just been issued by the Morse Chain Company of Ithaca, N. Y. It deals particularly with small power drives ranging from 15 to 100 h.p. It also contains a lot of very interesting and valuable information relative to the efficient use of Morse Silent Chains, which are so successfully employed in hundreds of industrial plants, including the clay products industry.

Photographs are shown, and explanations given, of the very efficient use of 10 h.p. and 40 h.p. Morse Silent Chains for driving clay elevator and wet pans in a southern brick and tile plant. This makes publication No. 15 of special importance to clay-plant owners.

The advantages of Morse Silent Chain Drives for transmitting small powers are exactly the same as for large powers, viz.: Positive speed ratio between driving and driven shafts, with the added feature of flexibility; 98½ to 99 per cent. sustained efficiency; quietness at high speeds; convenience of application; greater reliability, and longer life and lower upkeep cost.

The New American Pulverizer

The American Ring Pulverizer, made by The American Pulverizer Company at East St. Louis, Illinois, has for several years given wonderfully fine service in the grinding of clays and shales. Plants that found it impossible, or excessively expensive to grind their raw material by any other method, have been able to cast aside their troubles in this regard since installing the American Pulverizer.

But this company has not been content to rest on past laurels, and has made changes in construction that have brought their product up to one hundred per cent perfection. The American has certain distinctive features that make it easily superior in efficiency, and which serve to produce more



tonnage with less operating cost per finished ton. The principal features are:

The ring—It grinds by impact and attrition. The only rotary pulverizer that utilizes centrifugal force at right angles to a horizontal shaft. Result—low speed, less power.

Speed—One-half the speed of any other rotary pulverizer, viz.: not exceeding 600 r. p. m.

Steel—All crushing and grinding parts are made of manganese steel.

Shafting—Diameter, 5 in.—bearings dust-proof.

Disks and Housing—Disks installed in offset in housing—disks and housing protected by chilled iron liners.

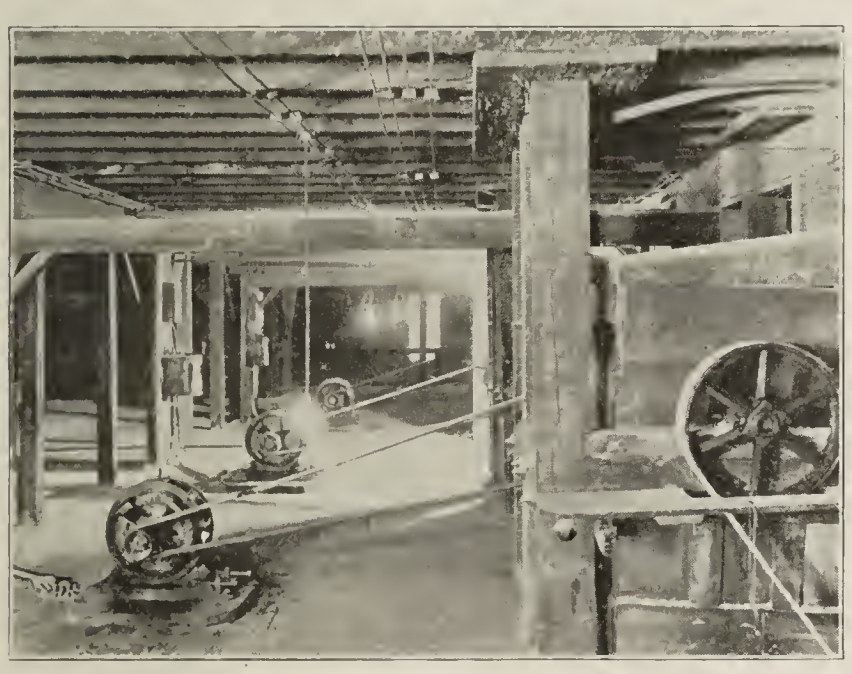
One of the largest sewer-pipe companies in the country has been using the American Pulverizer for nearly three years, and they adopted it after investigating or trying almost every other grinding equipment. Their clays and shales are quite difficult to grind—some stratas are soft and some extremely hard. In commenting on the American recently, they said: "We consider ourselves very fortunate, indeed, in having this machine. It does the work of two or three ordinary dry pans, and, considering the tonnage obtained, it is as cheap, if not cheaper, to operate and maintain."

The American Ring Pulverizer is highly commended for use in grinding all kinds of clays and shale.

* * *

Demonstrating Reliability of Motor Drive

A great deal was said and written by eminent authorities on the reliability of motor drive. Much of this discussion went over the head of the non-technical reader so that in



Salt Caked Into the Windings, But Even Then the Motors Kept on Working Efficiently

spite of the widespread educational work many power users clung for years to the idea that electric motor was not suitable for certain kinds of drive under trying conditions of dust, moisture, etc.

It remained for one motor manufacturer to arrange a demonstration that proved beyond doubt the reliability of electric drive under seemingly impossible handicaps. The example was so striking and convincing that it has done more to build up confidence in the electric motor than all the technical articles that have been written on the subject.

At a Machinery Exhibition in Cleveland in 1908, the Lincoln Electric Company exhibited one of their standard induction motors in constant operation while entirely submerged in water. This exhibit attracted such wide attention that the idea has been used by them ever since in many conventions and meetings of manufacturers and others interested in use of power.

The practical worth of this test has been proven in hundreds of cases where the motor in actual service has stood up under even more severe tests than submerging in water.

A good instance of this is a motor installation in the Cleveland Salt Works, Cleveland, Ohio. Here the motors have operated in rooms where moist salt is always present and this salt has caked into the windings, until they are hardly visible. In spite of this there has not been a single shut-

YOU DON'T DARE use as much coal this year as last.

You can't afford it—and in order to keep your costs within reasonable limits you simply must burn less fuel.

To continue as usual with the old type of furnace would be permissible and perhaps pardonable if there was no other method that was superior.

The Canton Grate

is superior.

It is designed to be both shaking and dumping—clinkering is almost eliminated, for the grate can be kept clean and clear by using the shaking device at hourly intervals or whenever needed, consequently the firemen are enthusiastic. There is almost no loss of heat when firing and cleaning, there is no loss of live fuel in the ash. The best plants in the U. S. A. are using it. Why not you? Did you get our catalog?

The Canton Grate Co.

1906 Woodland Ave.

CANTON, OHIO





The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

down from motor trouble in the ten years since the motors were installed.

Plants where dust has been a troublesome factor have become convinced in the same manner that the electric motor is the most reliable power for their work.

The Lincoln Electric Company, Cleveland, Ohio, who developed this motor drive test, are manufacturers of induction motors from ½ to 500 horsepower. The unique demonstration has not only proven an important factor in their own business but in the development of motor drive generally.

Efficient Electric Tractor

Judged by appearance only, no one would suspect the electric tractor shown in the picture of being able to pull several loaded trucks through the streets, yet the American Express Company has a large number of these tractors engaged in the work.

This tractor is a modification of the Standard Electromobile Tractor and was built especially for the American Express Company by the Orenstein-Arthur Koppel Company, of Koppel, Pa. With a wheelbase of 30 inches it can turn in a radius of 4 ft. 9 ins., which enables it to operate freely indoors as well as on the street. A load of 15,000 lbs. can be pushed or pulled at a maximum speed of seven miles per hour.

It will be noted that the large sprocket is bolted to the spokes of the drive wheels, thus giving maximum distribution of strain.

A feature of the tractor is the fool-proof control which renders it impossible to operate it other than correctly. The control will automatically shut off the power and set the brakes if the operator steps off or is thrown off the platform when the tractor is in motion.

The wheels are cast steel with Timken bearings and 20-in. solid rubber Goodrich tires. The motor and control are of the Wagner type and current is supplied by Exide batteries.

A Valuable Babbitt Treatise

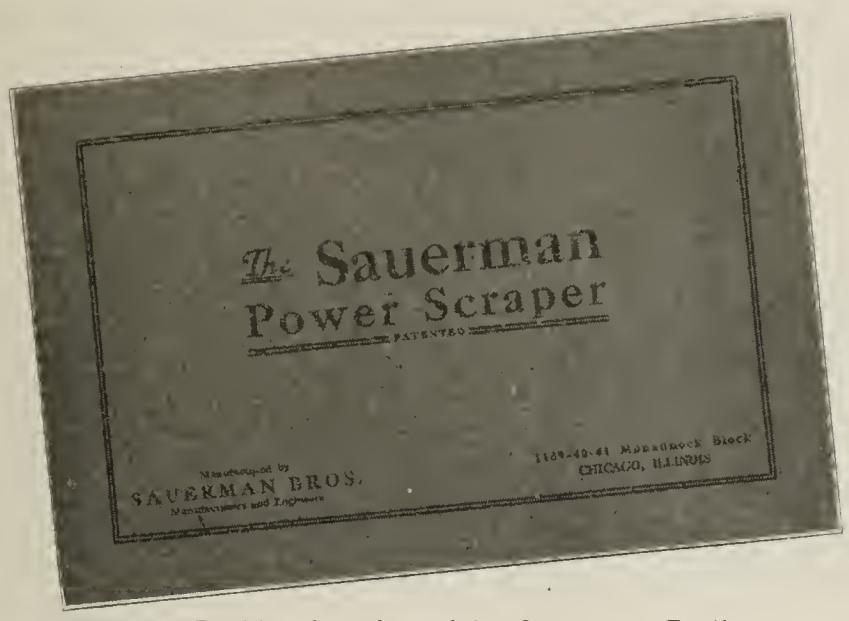
Walter D. Elmore, Bessemer building, Pittsburgh, Pa., has issued a mighty interesting booklet on the use of babbitt. It contains recommendations and suggestions for the pouring and casting of bearings, and is illustrated. A copy of this booklet should be on the desk of every clay-plant superintendent.

Elmore babbitt has been used for an extended period on



Special Type of Electric Tractor Built by the Orenstein-Arthur Koppel Company

SAY I SAW IT IN BRICK AND CLAY RECORD



A New Booklet Just Issued by Sauerman Brothers

brick and tile plants in the Pittsburgh district and its fame is rapidly spreading to other clayworking sections. It isn't ordinary babbitt but is made in the "Elmore Way."

* * *

Dragline Excavators

For the clay-plant manager who has a shale pit to strip or has digging to do in the softer shales and clays, a new booklet, depicting every possible application of power scrapers, has been issued by Sauerman Bros. of 316 South Dearborn Street, Chicago, Ill.

These machines of more than ordinary merit in the past, now have a value greatly enhanced, due to the elimination of man-power gangs.

They are flexible, easily adapted to any pit condition; do not require industrial railroad equipment, locomotives, trackage, etc., and easily turn out the tonnage for which they are designed. Copies of the pamplet are free of course.

* * *

The Chmelewsky Continuous Kiln

Dr. H. Robergh of 30 W. 127th Street, New York City, is now the representative in the United States for the Chmelewsky Patent Kilns.

They burn any kind of fuel, save 60 per cent. of former burning costs and are today operating successfully in European countries.

The Chmelewsky catalog is very complete and the description of this kiln is clear and plain.



The American Express Company Is Using the Electric Tractor to Perform the Seemingly Impossible

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE

R. D. WOOD

AND COMPANY

Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

American No. 290
Auger Machine

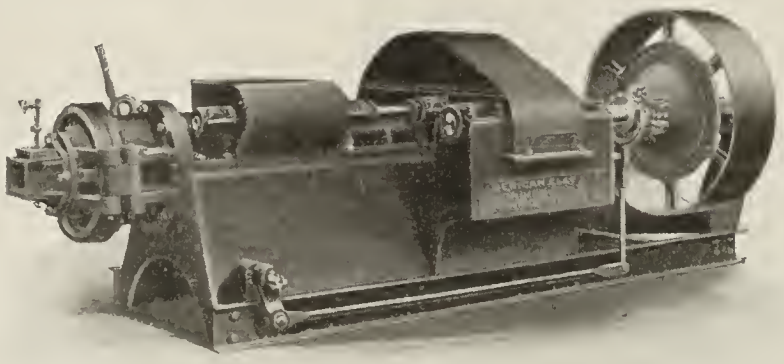
When the big manufacturers are enthusiastic over the performance of the American No. 290 Auger Machine there must be a good reason.

The one big reason is that there never was a better auger machine built.

It is of high quality from its one piece base casting to the top of its carefully made gears. It is solid quality clear through and that quality is the cause of its successful operation.

The quality of the American No. 290 isn't a "day to day" quality, but a "year to year" quality. Its goodness lasts and without expensive repair parts.

We have a specification sheet showing the detail of this machine that we will send you if you are really interested in more production at less cost.



American No. 290 Auger Machine

The American Clay Machinery Co.
BUCYRUS, OHIO



The EDITOR'S CORNER

IT really should not seem necessary to urge upon the manufacturers of clay products, not only in the East, but all over the country, the wisdom of being represented at the second National Complete Building Exposition to be held in New York City, March 5th to 11th. That no provision has been made for a burned clay exhibit at this show to date is a condition that brings shame to the industry and its members into disrepute. The facts in the case indicate a sad lack of ability to recognize an opportunity for effective and inexpensive advertising and sales promotion when it is seen.

We are thankful that one manufacturer has taken upon himself the responsibility of seeing that burned clay has a place in this tremendous exposition, if he can get any financial support whatever. The plan of Robert C. Mitchell, salesmanager of the Barkwill-Farr Company, Cleveland, Ohio, which includes the sending out of seven thousand letters to the clay products manufacturers of the United States, appealing for small donations towards a fund to pay for a creditable exhibit, is certainly praiseworthy and deserving of support. Initial returns from the letters sent out indicate that it will be supported by the usual progressive few.

We cannot conceive of the brickmakers of this country being so shortsighted as to refuse to send at least the minimum amount asked for by Mr. Mitchell—namely, *one dollar*. While the maximum amount requested in the appeal is five dollars, there is a host of concerns who, in these times of prosperity, should be glad of the privilege of sending one hundred dollars to the treasurer of the fund—Ralph P. Stoddard, secretary of the Society Advocating Fire Elimination, Cleveland, Ohio.

* * *

Lost—a Friend

THE BUSINESS MEN of the nation lost a valuable friend at Washington with the recent resignation of Edward N. Hurley from the chairmanship of the Federal Trade Commission. He was the spokesman for that class of citizens who have chosen as their calling the hazardous and uncertain occupation of making a living by investing their money in a manufacturing or merchandizing business, and will be greatly missed in an atmosphere of politics and blundering on the part of incompetent office holders, as well as in the frigid chambers of the Department of Justice.

Prominent among Mr. Hurley's more recent endeavors was his work in behalf of cost accounting, which he pursued with tireless energy. Business men in all industries owe him a great debt of gratitude for the awakened interest in this important subject, for which he has been responsible. His talks on this subject before important trade bodies are almost numberless, in addition to which he has issued at least two bulletins outlining the fundamentals of a cost system for manufacturers and for dealers.

With the foundation for success which has been laid by the former chairman, the Federal Trade Commission has the opportunity of going on and achieving even greater success than has crowned its efforts in the past. The best wishes of all should go with Vice-Chairman Harris as he enters upon the duties of leadership at the head of the most important body in Washington for the business man.

* * *

Human Engineering

"PROBLEMS in human engineering," says Thomas A. Edison, "will receive during the coming years the same genius and attention which the nineteenth century gave to the more material forms of engineering.

"We have laid good foundations for industrial prosperity. Now we want to assure the happiness and growth of the workers thru vocational education and vocational guidance and wisely managed employment departments. A great field for industrial experimentation and statesmanship is opening up."

Nothing in all the years that have passed has been so effective in bringing to our attention the need for better systems of handling men than the present labor shortage, with its accompanying evils. Not a little has been written on this subject and published in the columns of this magazine during the past year. In this connection, also, it is only a few months past that the Ohio State University, Columbus, staged a big conference of engineers on this very question, covering all industries.

Now comes a very valuable and interesting article on one phase of human engineering by Spencer M. Duty, president of the Medal Paving Brick Company, Cleveland, Ohio, on the "Development and Application of a Bonus System," which appears on another page of this issue. If you want to read for yourself the testimony of one of your own number concerning the possibilities of a judiciously handled bonus system, do not fail to read this article.

* * *

Why the Cry for Men?

WE HAVE HEARD a great deal about the shortage of labor and skilled help in clay plants, which condition we presume also applies to those who have sufficient ability to assume the responsibility of an executive, such as a foreman or superintendent, also to those who have technical training, namely, ceramic engineers.

Following this line of reason, there is really very little excuse for the state of affairs outlined in the following letter from a native of Belgium, who, finding his employment gone, has been forced to leave his afflicted country and turn his face toward the "land of the free."

"Since my last letter I have applied to several ceramic works in the United States, but in spite of my capacity and long experience in this branch, I have had no success anywhere.

"There are influential persons in the ceramic industry who would like to do something for me, but they say that the American manufacturers do not much favor the employment of strangers and that they give the preference to practical workers of the country.

"I have been obliged to accept provisionally a place of an inferior grade in a floor and wall tile factory here in * * * but this place pays so little that I have hardly enough for my wife and myself."

The practice of some clayworking plants to bar reputable visitors from their factories, to say nothing of the employment of a man from across the seas, is probably responsible for the inhospitable reception which this stranger has received. However, since this hide-bound practice is in itself not justifiable, it is a poor excuse for refusing employment to a capable ceramist, tho a foreigner.

HELP WANTED *from the*



ROBERT C. MITCHELL
Not Satisfied to See Brick Neglected

You Can Do Your Share Toward Making Possible a Creditable and Successful Exhibit of Clay Products at the Second National Complete Building Show to Be Held in New York, March 5th to 11th, by Sending a Donation of from One to Five Dollars to Ralph P. Stoddard, Treasurer of a Special Fund, Leader-News Bldg., Cleveland, O.

THERE is at least one brick manufacturer in the United States who is not satisfied to have his commodity neglected in the National Complete Building Exposition, to be held in the Grand Central Palace, New York, March 5th to 11th. When it became apparent that the eastern brick men were not taking advantage of this show and that brick and tile would seriously suffer by reason of not appearing among all the other materials, Robert C. Mitchell, salesmanager of the Barkwill-Farr Company, Cleveland, undertook a novel campaign to give brick recognition at the New York exposition. Mr. Mitchell is sending out a letter to about seven thousand clayworkers in the United tSates asking for contributions of from $1 to $5 to be used in erecting a suitable display at the Grand Central Palace.

"WE'RE NOT DEAD YET," SAY LIVE CONCERNS

"Is the Clay Industry Dead or Alive?"—that is Mr. Mitchell's heading for his letter, and from the first two days' mail since the letter went out, it appears that there are a number of brick manufacturers who are not willing to admit that the industry is completely without life. Those who have responded up to the time of writing this story are: Metropolitan Paving Brick Company, Canton, Ohio; the Keystone Clay Products Company, Greensburgh, Pa.; Medal Paving Brick Company, Cleveland, Ohio; Western Brick Company, Danville, Ill.; Haeger Brick and Tile Company, Aurora, Ill.; Hocking Valley Fire Clay Company, Nelsonville, Ohio; Bessemer Limestone Company, Youngstown, Ohio; Western Brick and Supply Company, Hastings, Neb.; Alliance Clay Products Company, Alliance, Ohio; Wynn and Starr Company, Trafford, Pa.; Wm. A. Wallhead, Elyria, Ohio, and Hydraulic-Press Brick Company, Cleveland.

Mr. Mitchell is very much encouraged by this early response to his letter and believes that out of seven



One of the Attractive Face-brick Exhibits That Had a Place in the Cleveland Show Last Year

NATION'S CLAYWORKERS



No Exhibit in the Whole Show of February 1916 Was More Productive of Interest on the Part of the Public Than Farr Brothers' Old Dutch Kitchen, Which Was a Powerful Advertisement for Common-brick

thousand invitations a sufficient sum will be received to guarantee an impressive display of clay products at the big New York show.

TESTIFIES FIRST SHOW PAID ON COMMON-BRICK

"I was more than surprised to find that the brick manufacturers of the East were not taking any interest in the National Complete Building Exposition to be held in New York next March," said Mr. Mitchell, "after the splendid results obtained at the first building show held in Cleveland last February. My company expended about $3,000 individually on the Cleveland show, and altho at that time we sold the single commodity of common-brick, its results were more than satisfactory.

"I know that the local tile manufacturers who exhibited received direct orders out of the show, which made their expenditure a profitable one. About $5,000 was spent in the Cleveland show by Ohio face-brick manufacturers, with the assistance of the Chicago and Pittsburgh manufacturers. The fact that the building records of the city of Cleveland show an increase in brick homes of approximately one hundred per cent. this year over the record of 1915, and that houses have been built over and over thruout the city from plans furnished at the brick exhibit, should be sufficient evidence that this expenditure was the best piece of publicity that the brick manufacturers ever engaged in.

"In the fact of all these results, not a single brick concern sought to take advantage of the New York show which naturally would produce even greater results than did the Cleveland show, taking place as it does in the largest building center in the world where it will attract an attendance of from three to four hundred thousand people, instead of one hundred and fifty, as did the Cleveland exposition.

LUMBER IS "ON THE JOB"

"I was told by the manager of the New York show that almost the first week the chart for space was opened, the six leading lumber associations of the country made application for space. No argument was necessary in their case to convince them that these expositions exerted a wonderful influence upon the prospective builders, as well as upon the architect and engineer. About half the space in the Grand Central Palace was immediately sold to exhibitors of the Cleveland show, showing that the results were such as to warrant their going into another exposition of this kind.

"I have attended the clay shows and cement shows held in Chicago and my company has been an exhibitor in many expositions in Cleveland, and I am sure that the people who failed to take advantage of the building show have not yet discovered the difference between this type of exposition and the other shows mentioned. While the clay show and cement show are splendid expositions from a trade standpoint, they are not of the same character as the building show, which is directed entirely to the builder himself, together with the architect and engineer.

"The building show is a public appeal for better building and that is why I feel that it would be a serious mistake and might result in losing some of the ground that brick building has been gaining during the past few years, if our material should not be represented in this National Complete Building Exposition at New York.

AMOUNT ASKED FROM INDIVIDUALS IS SMALL

"Accordingly, I worked out a plan to make the cost to any individual insignificant. I asked for contributions of from $1 to $5, and I wish to assure those who receive my letter or others who may have been accidentally omitted from my list, that five $1 checks are just as welcome as one $5 check. We should like to have the greatest possible number of clayworkers interested in this exhibit. If we have the sort of response which I now expect, we will be able to make clay products as attractive to the prospective builder who attends the New York show as any material exhibited there. The plans for an exhibit cannot be worked out in detail until we know how much money we have to spend. I have asked for an option on one of the most prominent spaces in the show and I trust that we will have sufficient funds to take advantage of this location and erect there something which will show the beauty and the permanency of our material and suggest to the hundreds of thousands of builders who are going to the show that the best materials for their home, shop or store, or for any other building in which they may be interested, is brick or tile.

LIST OF DONATORS WILL BE PUBLISHED

"The complete list of donators to this enterprise will be published and when we have our plans for the exhibit complete, copies will be sent to all who have contributed. I am assured by F. W. Payne, manager of the Grand Central Palace, that every contributor also will receive a complimentary season ticket to the show, and it is hoped that every brick man who contributes will be able to attend the exposition. It is well known that the annual meeting of the National Brick Manufacturers' Association is to be held in New York at the time of the show and that, on account of this big gathering, all railroads reaching New York are offering special rates for the round trip.

"I do not think it is too much to predict that there will be the largest gathering of clayworkers in New York at the time of the exposition that has ever been in any one city. These clayworkers would certainly feel humiliated, it would seem, to attend this big exposition and see every material except their own displayed for the attention of the builder.

"I wish to suggest to all those who are interested in the making of this brick exhibit, to have their checks forwarded at once. The time is short for the proportion of the plans and the erecting of the exhibit, and we will have to know very quickly just what funds are available.

"I am asking that all checks be mailed to R. P. Stoddard, secretary, Society Advocating Fire Elimination, 354 Leader-News Building, Cleveland, Ohio, who has agreed to help me plan and erect the exhibit."

Cincinnati Brick Club Holds Annual Dinner

The annual dinner of the Cincinnati Brick Club was held, according to custom, close to the holidays, this year being on January 5th, and in connection with the election of officers to serve during 1917. Also, according to custom, the dinner was "on" the concern which had the honor of leading in sales made during 1916, the Pursell-Grand Company again having to pay the check for the affair, as was its "privilege" last year. This was no light duty, as the dinner was an elaborate one, and was followed by a theater party. The election of officers resulted as follows: President, Walter Pursell of the Pursell-Grand Company; re-elected secretary, Don Wever of the Brick Sales Company. The guest of honor and principal speaker at the annual "feed" was E. C. Howard of the Claycraft Brick Company, Columbus, Ohio. There were twelve present at the affair, all of the member concerns being represented by two or more persons. The year closed in excellent shape for all of them, and prospects for 1917 are of the brightest.

The New Britain (Conn.) Brick Company is rejoicing over one of the best years it has ever had. The past twelve months witnessed the largest output and the largest profit in the history of the business.



THE Startlingly Beautiful Exhibit of Texture-Surfaced Tile Shown by the Hollow-tile Manufacturers at the First Complete Building Show, Held in Cleveland, February 16th to 26th, 1916. There is Little Doubt But That This Made a Lasting Impression Upon All Who Saw It.

DEVELOPMENT *and* APPLICATION *of a* BONUS SYSTEM

Wherein is Set Forth the Interesting and Valuable Experiences of One Manufacturer in the Realm of Premiums for Better Work Done

By Spencer M. Duty

President, Medal Paving Brick Company
Cleveland, Ohio

THE SUCCESS of an industrial enterprise depends upon the combined efforts of employer and employe. Between the two there is a mutual dependency and the development of the sense of this dependency is vital. It should find its expression in active co-operation. The ideal condition obtains when the interests of both are merged in the welfare of the common enterprise. To realize the ideal it is essential that the activities of both shall be so correlated that what benefits one shall likewise benefit the other.

BONUS SYSTEM INDUCES CO-OPERATIVE SPIRIT

The application of a bonus system for wage earners reflects a desire to bring about a greater co-operative spirit and to improve the old and established methods of paying employes the day wage, a salary, or piece work rate. In order to promote this co-operation the bonus system should embody the mutual benefit of employer and employe, and provide a wage for the employe which is not only a living wage but which with the bonus payment will be higher than the going wage. Furthermore, the bonus system or other similar effort which savors of petty discipline will defeat the purposes for which it is intended.

There are several methods which seek to arouse the co-operative spirit in employes.

PROFIT SHARING APPEALS TO INTELLIGENT ONLY

Prominent among them is the profit-sharing plan. This has its greatest appeal to the more intelligent employe—to him who can wait for a return and who has the foresight to prepare for the future. It is usually distributed once a year, being based upon the profits of the company. Much of its force may be lost when applied to the average wage earner in whom the qualities of sustained interest and foresight are rarely found. When linked with some plan of acquiring stock in the company its appeal is only to those who expect to hold their positions for a very considerable time.

ANNUAL BONUS LOOKED UPON AS A GIFT

Another method is a bonus paid yearly, many times being nothing more than a gift. When based upon length of service it escapes the charge of paternalism which has so often aroused the opposition of the laboring man. Any plan based upon the good will of the employer is liable to be viewed with suspicion by those whose interest and co-operation is sought. With the lack of a definite basis for making the distribution and the uncertainty of future bonuses, the plan is robbed of vital elements.

Speaking of this and other plans, "Collier's Weekly" recently said: "Co-operation between employers and employes is continually helpful as long as the profit-sharing and other methods are kept on a business basis. Welfare work and such profit sharing as is given by employers out of the goodness of their hearts is usually not successful."

FREQUENT APPEAL NECESSARY FOR WAGE EARNER

The viewpoint of the average wage earner is not extensive. He sees from month to month, from pay to pay, and so an appeal to him for co-operation must be made at frequent intervals if he is to be encouraged to greater effort. Once a year is too infrequent a period to reach any but the more intelligent and far-seeing employe, and as we are dealing primarily with the day-wage earner, a plan involving more frequent returns is necessary.

The average wage-earner does not understand profits, and naturally doubts any plan based upon them. Furthermore, the successful bonus system—the one which will arouse the co-operative spirit—must be upon a business basis. The problem, then, becomes one of devising a system which has the merits of those already in use, but which offsets their weakness with features which insure a ready and active response, and which meets the needs of the industry for which it is devised.

TWO CLASSES OF BONUSES

Broadly speaking, there are two classes of bonuses; one based upon continuous service, the other recognizing quality and quantity of work performed. However, that based upon continuous service permits only of a small payment, and that only to an employe having the required length-of-service qualification. The bonus paid for quality and quantity of effort admits payment at frequent intervals, and therefore, possesses the necessary incentive for greater effectiveness, regardless of length of employment. As a rule, under this plan a greater bonus may be paid than is possible with the yearly bonus. All these factors contribute to its greater desirability from the standpoint of employer and employe.

We believe that the bonus which meets the needs of our business is one which pays more money for greater effectiveness, the former depending upon the accomplishment of the latter.

STEPS NECESSARY IN DEVELOPING A BONUS

In developing a bonus of this kind four steps are necessary.

First—Investigate and determine what operations or economies permit of the payment of a bonus.

Second—Set a standard for the basis of payment.

Third—Determine the value of results better than the standard.

Fourth—Determine a plan whereby a portion of such greater value will be divided among those who have made it possible—in other words, the rate of payment.

WHAT PERMITS OF THE PAYMENT OF A BONUS

First—In the determination of what permits of a bonus it is necessary to keep clearly in mind that the value of an improvement to the company over the standard should be greater than the total amount of bonus paid for that particular operation or economy. It is easier to apply a bonus to some operations than others. Number one material has a definite greater value compared to off-grade material. A saving in fuel is positive, the difficulty being in establishing, with reasonable accuracy, the actual consumption during a month. Regular production approaching the maximum production of the plant directly affects the unit cost of fixed expense, and, to a lesser degree, that of certain semi-fixed expenses. It is, therefore, to be encouraged. Departmental labor economy can also be determined and placed under a bonus.

A bonus based upon maintenance, oil, or similar items would have an element of danger. Such a bonus might induce cutting below the most efficient point, resulting in an apparent saving which would be the cause of a much larger expense later.

SETTING THE STANDARD

Second—After having chosen the operation or economy for the bonus, it is necessary that a standard be set. This standard should be as nearly as possible permanent, therefore, the greatest care is required. Frequent changes in the standard will destroy the confidence of the men in the system. Fluctuating factors should be eliminated if possible. A standard of a certain number of cents per ton or thousand brick for departmental labor would vary as wages varied, but a standard of hours per ton or thousand would not, and therefore, forms a stable basis.

In arriving at our standards we have based them upon past experience. If data covering the operations are not available we gather them as fast as possible. Such was the case in the application of a fuel bonus to the kiln firemen. Upon most of our plants considerable stocks are carried, and it is difficult to obtain accurate inventories, thus making it impossible to base a monthly bonus upon fuel received. It was evident that we had to devise a more accurate method of determining fuel consumption per month, and after having adopted a plan, we tried it for a very considerable time to determine its accuracy.

As a rule the standards we set are about the average performance for some time prior. A high standard will allow of but few payments of bonus and will result in a loss of interest on the part of the men, as they will not know how close they have been to earning a bonus. We preferred a lower standard and a lower rate of bonus, which insures continuity of payment. There is also the added advantage in a bonus always payable that it represents something of a barometer of plant performance. The advantage therein is both to the company and the men.

VALUE OF RESULTS BETTER THAN STANDARD

The third operation in establishing a bonus system is the determination of the value of results better than the standard set. *This requires a dependable cost finding system.* Only with accurate knowledge can it be known whether a bonus may be paid at all. It may be that the rate will be set too low when it might have been much higher and the men thereby encouraged to a much greater effort.

It is necessary that those installing a bonus system have confidence in it. A bonus based on a guess will destroy confidence, with the result that instead of going forward steadily the system will be extended only when it appears to be imperative.

HOW SHALL IT BE DISTRIBUTED?

The operations having been chosen, a standard set, and the value of results better than the standard known, a method of paying the bonus is then determined. Who shall share it? Shall only department foremen receive the bonus or all the men in the department? Payment to a foreman alone, of course, allows of a much greater payment, and arouses him to great activity. He drives the men to the utmost, and in times of labor shortage, such as these, probably off the plant. In our opinion such a bonus system would be almost ideal as a breeder of labor trouble.

One of the objects of a bonus system is to pay higher wages without being hurt thereby. Paying all the bonus to foremen alone defeats this object. Paying a larger share of the bonus to foremen than to the men is entirely permissible. If thought wise, there can be a scale of payment, those having the greater responsibility getting the greater bonus.

Payment may be made by a per cent. upon the wage, or the amount to be paid as a bonus can be figured as a whole and divided among those entitled to participate.

It is sometimes advisable to increase the rate of bonus as the results approach the limit of effectiveness. This would be especially true if a low standard and rate have been set in order to arouse the interest of the men upon the inception of the bonus by making it possible for them to receive one, when with a high standard and rate it might be earned seldom, if ever.

MONTHLY PAYMENTS MAKE FOR STEADY OUTPUT

It has been our practice to pay the bonus upon a month's operation. By so doing we get an average and thereby discourage stunt performances. There would be little gain to have a kiln producing a high percentage of number one brick with a low fuel consumption, and pay a bonus upon it, only to have it followed by a number of bad kilns.

Thus far we have bonuses upon the per cent. of number one material and fuel economy payable to the burners, and a bonus upon average daily production for a month, payable to nearly all employes. The bonuses upon number one material and fuel economy are paid the following month and that upon production, the second month following.

If an employe leaves or is discharged prior to the date of payment he loses the bonus, except when we discharge for lack of work, or when the man leaving has been in our employ at least a year and gives fair notice. The object of withholding the production bonus until the second month following that during which it is earned is to hold the men. This bonus has not been in operation for a sufficient time, however, to speak of its value in this respect.

TIME-TESTED BONUSES HAVE PROVED VALUE

The bonuses upon number one material and kiln fuel have been in operation for some time. They have both proved their value beyond a question of a doubt. The kiln percentage and fuel is held much more evenly, there being many less poor months than before the bonus became operative. This is especially true during the winter. Having one object to work for prevents to a large measure the disagreement and jangling common between the day and night crews.

The production bonus is a more recent development and we are not in position to speak with the same degree of assurance as upon that previously mentioned. Our object in starting it was to have all the men pulling for a common object. This was accomplished and production went up almost at once.

In the manufacture of paving-brick, where the output can be curtailed by inefficiency in any part of the process, a production bonus seems to be a necessity. However, the benefits are less easily reduced to a money equivalent. Larger production may make it necessary to increase the force in some departments. To offset this tendency we believe that it should be supplemented by a bonus upon departmental economy.

FACTORS EFFECTING A CHANGE OF STANDARD

The standard which we have set is an average or normal output. Any material enlargement of the plant would, of course, change the standard, as would the increase of any equipment, the capacity of which was less than the rest of the plant. The same statement holds for a change in product manufactured.

It is our practice to pay more than one bonus to the men. One bonus alone will tend to concentrate their attention upon one particular thing to the detriment of others equally important. A bonus upon fuel consumption alone would cause the burner to neglect the quality of ware produced. A bonus upon production would also have the same tendency unless the off-grade material was not included.

Without question there should be a balance between the different kinds of bonuses a man receives, or some bonus should be devised which includes all the important qualities of his work.

HAS ONE GREAT ADVANTAGE OVER PIECE-WORK

In one respect, at least, the bonus system has a great advantage over piece-work. It is not necessary to argue with the men or talk to them prior to putting it into effect. The basis may be determined and when a good opportunity presents itself, the bonus may be paid. There is no need to argue or convince; the bonus speaks for itself. Beyond a mere statement of its object nothing need be said. We are of the opinion it is better to say as little as possible. For a time the men are suspicious and wonder what it is all about. One can sit back and let them take their own time to become familiar with it, and come to the belief it is a good thing. The employer can well afford to wait patiently for results. If the bonus is upon the right basis, he is profiting by the payments and is getting a share with the men.

Little attention will be paid by the men until the payment amounts to at least two or three per cent. increase in their wages. Then they begin to show interest, work a little harder, and, finally, earn four or five per cent. If the basis of another bonus is ready this is a good time to start it.

BONUS MORE EFFECTIVE THAN WAGE INCREASE

We believe that money received as a bonus has a much greater effect than the same amount received as a wage increase. To revert to the original conception for the requirements of a bonus system, the wage plus the bonus must exceed the going wage, otherwise the effect is lost because more wages are not being paid in proportion to more work.

It should not be forgotten that a bonus system is an experiment with human nature, and human nature is not susceptible to fixed rules. Whether or not bonus systems and profit-sharing plans will make for less labor trouble cannot be absolutely answered. It is known that a great deal has been accomplished in many places by them. The laboring man now demands more than a bare living wage. Profit sharing and bonuses are an effort to give him more, to give him a fair proportion of the results of a greater effort. The employer, in general, confronts the necessity of discovering some method, more fair and just than the methods of the past. The bonus system described illustrates the method in process of being tried by our company.

ACTIVITY *in* N. Y. FORESHADOWS "BOOM" YEAR

NEW YORK is interested, of course, in the news from "down Washington way" pertaining to the now famous "leak" rumors, but New York is not excited. Gotham is merely amused, that is all. Certainly things begin to get right lively when Congress calls Thomas W. Lawson, Secretary to the President Joseph Tumulty, Secretary of State Lansing and a dozen or so of New Yorkers to tell what they know about the matter. But bigger things than "leaks" have loomed up on the horizon for little old New York the past year and failed to make Father Knickerbocker do the "stop, look and listen" act.

NO STOP AT TURN OF THE YEAR

New York hardly paused for the annual holiday recess. On the contrary, the closing of 1916 was done in high speed style and 1917 was begun with a rush.

There is plenty of gold in the New York banks. Within the space of a month the clearing house institutions built up their surplus fully $75,000,000, or from a low level of $41,000,000 to $117,000,000. The recent rehabilitation of reserves reflects the record-breaking gold inflow with more than $150,000,000 of the yellow metal received in December alone. Builders and investors have taken notice of the financial situation, and to say that they are pleased, would be putting it mildly.

NINETEEN-SEVENTEEN STARTS OFF WELL

The New York "Sun" states the situation clearly when it declares, "the reality market has backed up in wonderful fashion the prophecies that 1917 would see interest in real estate revive and that business would be of an activity not experienced since the booming days which were halted by the panic ten years ago. Altho only five business days of the new year have been spent at this writing, the remarkable amount of business which each has developed seems to give credence to the most optimistic prophecies that have been made."

The "Sun" is a recognized authority and it is interesting to note that practically all authorities agree with its expression of opinion on the early days of 1917. This same authority says, "if all the weeks of 1917 are as productive as last week, it will be a remarkable year—one which will be remembered not only as marking the turning point from hard to good times, but as one of the most active twelve months in real estate history."

ACTIVITY INDICATES "BOOM" YEAR AHEAD

True, it is inventory season and all that, but there is much going on beside the work of the inventory. Architects are advancing plans rapidly, contractors are figuring, material men are buying for as far ahead as Septem-

ber and the activity has all the ear marks of a real lively "boom," and unless all signs fail, it will have to be a rough February and March to keep the "boom" from getting an early start.

One can talk and talk on "booms," gold mines, prosperity and other good things, but there is always a chance of there being a certain amount of "hot air" in matters pertaining to the real estate business, for it is the very nature of the business that those in it should be hopeful talkers, liberal thinkers and disciples of optimism. But there is proof aplenty to show that the writer is not building castles in the air.

SEE SEVENTY-FIVE MILLIONS IN NEW BUILDINGS

A first week of 1917 saw the C. K. G. Billings-Sheafer-Hays holdings of 880 lots on the north side of Washington Heights sold to a syndicate of millionaires for a project said to involve an eventual outlay of $25,000,000 for residential development requiring plenty of clay products. With this fact, the oft-repeated report that the Bronx is going to wake up this year, has materialized and this borough has come to the front bidding for fully $50,000,000 in new buildings, and so we find that we have $75,000,000 of new building in sight, despite high prices of material.

BILLION DOLLAR BUILDING BILL IN 1916

According to statistics given out by the F. W. Dodge Company this week for building and engineering operations, more than $1,356,989,000 was the 1916 building bill in New England, New York, New Jersey, Pennsylvania, Delaware, Maryland, District of Columbia, Virginia, Ohio, West Virginia, Illinois, Indiana, Iowa, Wisconsin, Michigan, Minnesota, North Dakota, South Dakota, part of Missouri, and eastern Kansas. In 1915 the figures for the same territory were $940,089,300, and in 1914 $720,241,300. For New York state and northern New Jersey the total was $283,659,500, of which nearly $260,000,000 was for building in the metropolitan district, which means greater New York and its suburbs.

The Dodge Company declares that during the past eight or nine years the amount of building has not been enough to meet the normal demand incident to the growth of the country, and that at the beginning of 1916 the country was considerably under-built. This authority contends that an analysis indicates that the aggregate construction during the past year has been no less exceptional, despite the abnormally large amount of money invested, and that high prices will continue to hold the supply below the demand for several years.

WAR HELPED ALL TYPES OF CONSTRUCTION

War inflation was a big factor in sending up the cost of labor. Industrial building in 1916 was heavy, especially in the East, due to many munitions plants and additions being erected. Architects and builders in New York and New Jersey, as well as New England, expect to see a big increase in residential and investment work in 1917, and again the war is a factor for the reason that laborers and munitions plant workers, having had a chance to accumulate funds, will, in many cases, put their money into homes or into real estate as an investment.

320,000,000 COMMON-BRICK NEEDED

According to a survey of the Dow Service covering the situation, the common-brick requirements for the first five months of 1917 will be in excess of 320,000,000 in the metropolitan district. This service has its hand on the pulse of the industry and it is declared that advices were sent out to the manufacturers of building materials supplying the metropolitan district last week (that ending January 6th) that it would be to their interest to anticipate movements of building materials for the first half of 1917. This advice was based upon surveys recently made by railroads regarding car requirements and ability to move coal, coke and other fuel.

INCREASING DEMAND FOR HOLLOW-TILE

The manufacturers of clay products will be interested to know that in fireproofing there is an increasing inquiry for hollow-tile and stucco construction in the suburban field. Lumber prices have not shown as much change as other commodities entering into building construction, but the January wholesale list strongly urges buyers to anticipate as far in advance as possible for their wants. There is no doubt of a further advance, it is said upon authority.

RECORD WILL BE BROKEN WITHIN SIX MONTHS

It is interesting to record that, outside of steel, no building material price record has been broken within the past ten years. There is, however, almost a certainty that within the next six months the index figure covering building commodity quotations will exceed that of the highest previous year—1910—when the aggregate price for the seven leading basic materials, namely, common-brick, Portland cement, structural steel, linseed oil, ordinary plate glass, pine flooring and lime, was $58.90, dock, New York. The past year closed with this aggregate price at $58.61.

However, in spite of this situation, loan applications do not indicate any curtailment in the volume of projected construction covering an area from Atlantic City, N. J., to Bridgeport, Conn. Mortgage money is, on the contrary, becoming increasingly easy. The demand for new buildings offsets the higher cost of materials, especially since the current additions favor an active participation of high-grade builders rather than a certain type of speculative operations.

Manhattan borough plan filings from December 29th to January 5th total $1,720,000 for new buildings, and $351,650,000 for alterations. For a like period of a year ago new buildings cost $1,334,450 and alterations $133,335.

Sewer-pipe Company to Build New Plant

The American Sewer Pipe Company will erect, at an approximate cost of $50,000, a four-story plant at Empire, Ohio, on the site of the Ohio Valley Brick Works, which was recently destroyed by fire. Just as soon as the plans for the plant, which are now being made by Chief Engineer Robert Hussel at the company's offices in Akron, are completed, work will be started.

While the details have not been completed, it is the intention of the company to raze the old Calumet works, at Elliottsville, and use as much of the material as possible in the construction of the new plant. It is likely that one of the presses at the Calumet will be moved to the new plant.

The new factory will be especially equipped for the manufacture of hot top brick, which are now being used extensively in steel manufacturing. The brick are made in various sizes, and their use practically stops all waste in the manufacture of steel ingots, as it prevents dross from forming at the top of the ingot mold. The brick can be used only once.

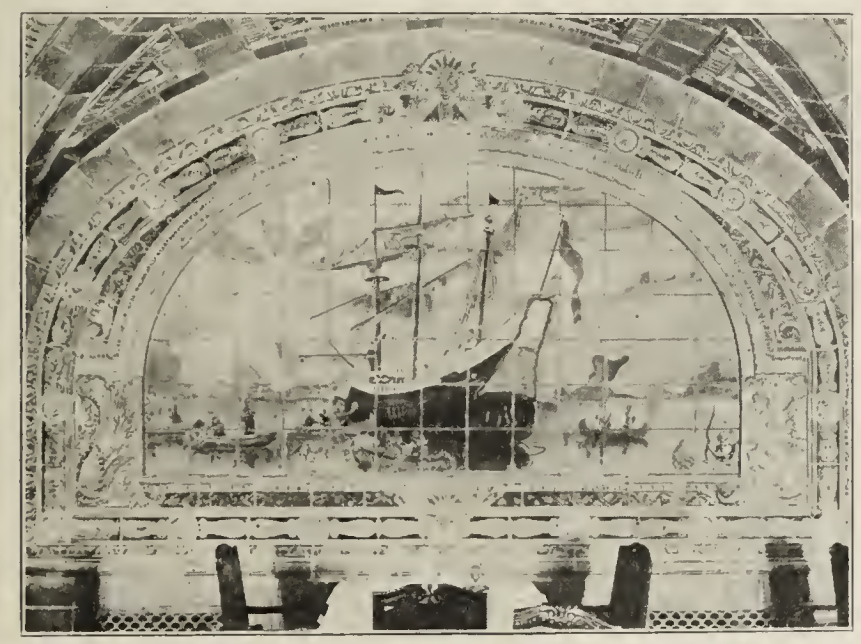
ARTIST'S DREAM REALIZED *on* BURNED CLAY



"Spaced Between the Half Piers Against the Wall, the Panels (Designed by Fred Dana Marsh) Present Vistas as Viewed Thru the Corridors Formed by the Vaulted Construction and Give an Impression of Space as Tho Looking Thru Windows."

Pictures Painted on Everlasting "Canvas," as Well as Design of Entire Room, Stamp McAlpin Hotel Terra Cotta Grill as Distinctively Individual

THE QUESTION OF A DESIGN for the grill room of the Hotel McAlpin, New York City, was a matter of considerable moment when that structure was being planned because of the importance of the hotel, being the largest in the world, situated in the heart of America's biggest city, surrounded by the shopping and theatre districts, within a block of the great Pennsylvania depot, having easy access to all the principal points of interest and with an equipment such as would correspond in importance and magnitude to the greatest hotels in existence.



The Panel of the "Half Moon" with Its Gay Bunting and Decorated Quarter Deck Sailing Up the Hudson

As there were several noted terra cotta grill rooms in existence at the time, there was little of novelty in the mere idea of having a terra cotta grill room, but the idea of the design, color and treatment suggested for this room was very novel indeed, and it was also very appropriate in this particular case to use a material which had been such an important factor in the successful treatment of the exterior of the building.

Furthermore, terra cotta had peculiar qualitites which were of especial value for the finish of such a room. As this room was to be down below the sidewalk level, having no windows and very little height of ceiling, with much of its space occupied by the structural columns which support the weight of twenty-five stories above, a vaulted construction offered the best solution of the question of design. The bulky form of the terra cotta blocks, being very adaptable to such a construction, would present an appearance of stability in harmony with the underground character of the room. The glazed surface of the terra cotta being hard, durable and non-staining, could be readily cleaned with water and would therefore, be sanitary and retain the freshness of its remarkable coloring indefinitely.

COLOR SCHEME WONDERFUL

As one first enters this room and views its wealth of color, there is excited in his mind a sense of novelty, for altho a Spanish feeling is evident thruout its decoration, the room can not be called a Spanish room in the same sense that other rooms are known as Dutch rooms, Egyptian rooms, and so forth. The Spanish motifs, however, are very appropriate as they afford fine opportunities for the display of the general color arrangement, the chief tone of which is a brownish tan, very hard to describe, but probably more like russet Spanish leather than anything else. It is not an even color, dead flat in its appearance, but is shaded into tints which give life and warmth to the ensemble very appealing to the eye, and in certain lights is iridescent and luminous, reflecting in a most fascinating manner the subdued rays eminating from the shaded side lights, small table lamps, and the delicately designed opaque glass panels recessed in the ceiling.

While the general effect is dominated by this Spanish brown, if we may so call it, the color which surprises the eye most is a wonderful red described by someone as the "red of Abbey's Holy Grail," a bright scarlet laid on almost un-

sparingly, yet, well within the limits of good taste, accenting the principal features of the design. Blue, apple green, purple, emerald, white and other colors blend into each other and mark out the ornamentation and give form and contrast to the minor details.

WALL PANELS EXCITE KEENEST INTEREST

Altho this golden brown with its accents of red pervades the entire scene and provides an atmosphere of beauty, the pictorial wall panels, designed by Fred Dana Marsh, excite the keenest interest. Spaced between the half piers against the wall, the panels present vistas as viewed thru the corridors formed by the vaulted construction and give an impression of space as tho looking thru windows.

These panels provide a local interest as they depict the principal events in the history of the Hudson river.

First, we have the "Half Moon" with its gay bunting and decorated quarter deck surrounded by the wondering savages in their birch canoes. The coloring of the flags, the purple palisades in the distance, the setting sun, the beautiful reflections of the canoes and the ship in the calm waters of the river, all softened by the river haze, denote a skill in the



The Mammoth Cunarder in This Panel Seems Almost Real with Her Massive Stacks and Large Black Hull, Dwarfing the Busy Tugs Assisting Her to Navigate Thru the Intricacies of the River Traffic

technique of ceramic art commensurate with the conception of the artist, reflecting great credit upon terra cotta.

HISTORY OF NEW YORK DEPICTED

The next event is the occupancy of New Netherlands by the Dutch, illustrated by a view of the old fort at the Battery, a wind-mill transported from Holland, and ships denoting the beginnings of commerce with the Old World.

This is followed by a vigorous picture of English ships fighting to take possession of the city, and here again we find the red accenting the scene in the flaunting of the ensign of Great Britain.

We next have a representation of that wonderful event, the "Clermont" steaming up the Hudson river, making prophecy of these latter days of remarkable development of commerce as pictured by the "Commonwealth" leaving her moorings beneath the shadow of the tall buildings of the city, and picking out her course with a search light as she turns her prow down the river for her journey along the coast of New England, and again by the mammoth Cunarder with her massive red stacks and huge black hull, dwarfing the busy tugs assisting her to navigate thru the intricacies of the river traffic.

Altho the ceramic character of the vehicle employed for the expression of these themes is emphasized by tile-like jointing, variation of the colors and conventional treatment of some of the modeling, the views are presented in a manner so true to nature as to create an illusion in the mind of the observer and lead him to forget the medium employed while his mind absorbs the meaning and beauty of the artistic conception.

DO NOT FAIL TO SEE GRILL WHEN IN NEW YORK

Those delegates to the convention of the National Brick Manufacturer's Association, which will be held in New York, March 5th to 20th, who fail to take advantage of their opportunity to spend an hour or two at lunch or dinner in contemplation of the beauties of this splendid example of ceramic art, will miss one of the most important educational features of the coming gathering of clay products manufacturers.

It would be an injustice to the Atlantic Terra Cotta Company, in closing, not to mention the excellent work which that concern did in making possible this wonderful production of ceramic art. Only those who are acquainted with the difficulties met in the manufacture of high-grade terra cotta can comprehend what the making of the material used in this grill really meant. Countless hours of tedious toil in the drafting rooms were necessary in order that the modelers might do their work quickly and well; patient perseverence in the last mentioned department on the part of experienced artists was necessary in order that the dream of the designer be made real. Very few can picture the stick-to-itiveness required of those who worked with the multitude of glazes used, and the burning of the ware.

Altogether, it is a piece of work of which the Atlantic Terra Cotta Company may well be proud.

Building Strike in Pittsburgh

While Pittsburgh has been in the throes of a bad building season when compared with other cities of the same size, still further hardship has been forced upon the building trade in the "Smoky City" by a strike of all the skilled workmen under the jurisdiction of the labor unions. The cause of the trouble was the sheet metal workers and the carpenters both claiming certain parts of work entailing the placing of metallic baseboards in the new Chamber of Commerce building. Both sides refuse to make any concession. The Contractors' Association endeavored to settle the controversy but failed dismally—hence, three or four thousand men are idle, operations are tied up on every important job and the general public suffers.

The year 1916 will go down in history as the greatest twelvemonth ever experienced in the building trade. In 1913, when operations thruout the country were estimated to cost $683,520,800, it was thought that construction work had reached figures that would not be duplicated for years to come; still these figures were surpassed by over $400,000,000 up to December 1st, 1916. The greatest center of building during 1916 was New York City, which shows $376,671,750 worth of work, followed by Chicago with $110,672,450. Pittsburgh will stand about twelfth in the race for honors which seems to be a poor position, considering the wealth of the city.

COUNTING *the* COST

The Evolution of Bookkeeping to Cost Accounting is Briefly Traced in This, the Second of a Series of Articles on the Above Subject

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company, Uniontown, Pa.

A MAN once gave his wife fifty dollars and an account book in which to set down the amounts she spent. When she applied for another installment she presented her account book for inspection. On one side it read, "Received fifty dollars from Archie." On the other side it read, "Spent it all!"

This is on a par with primitive single entry bookkeeping. All the manufacturer knew from his accounts was that he had received a certain amount of money, and that he had spent it all, and more too. In the course of time, men felt that they needed more definite information as to where the money was going, and this resulted in double entry bookkeeping.

In this system, in the early stages when the ledger, like a scrap pile, contained a little of everything, accounts were kept not only with those to whom sales were made and from whom material was purchased, but also with impersonal items such as raw material, fuel, labor, repairs, and so forth.

MUSHROOM ACCOUNTS

Recently the writer heard a manufacturer, in discussing a particular item of expense, say, "Open up an account in the ledger under that head." That is the old time method in double entry bookkeeping which is still widely used. The only way to keep track of a particular item of expense was to open an account with it. As a result, one's interest begins to focus itself upon lesser and lesser details, until one begins to feel like a small boy attempting to see everything which takes place at a three-ring circus.

AN IMPROVEMENT NEEDED

A good cost system should keep track of as many different items of expense as the management desires, and at the same time the ledger should not be filled with impersonal accounts like a fig with seeds.

In some elementary systems, postings to the ledger are made from a journal, a cash book, a sales book, and perhaps from other sources.

Many readers will recall, and perhaps many have used, the system in which each item was journalized as follows:

Fuel	$127.00	
Raw material	213.00	
To A. B. Supply Co.		$340.00
Raw material	17.00	
Repairs	25.00	
To O. K. Clay Co.		42.00
Repairs	35.00	
Fuel	50.00	
To Good Supply Co.		85.00

all in the bookkeeper's best hand writing, with neat red lines between each entry.

This involves nine entries in the ledger. To shorten this labor, the bookkeeper, in a set of accounts with which the writer came in touch, began taking a handful of invoices such as the above, making a compilation on a piece of scratch paper, and compiling them in one entry, as follows:

Fuel	$177.00	
Raw material	230.00	
Repairs	60.00	
To A. B. Supply Co.		$340.00
O. K. Clay Co.		42.00
Good Supply Co.		85.00

This had its advantages, making fewer postings to the ledger, reducing the number in the above instance from nine to six, and reducing by one-third the work of posting, taking off trial balances, etc. But the method has a ratchet to it, so that it is not easy to reverse the process. In some instances, the writer needed to trace an entry, such as "Repairs," for example, in which case it was necessary to dig out the entire batch of invoices, or vouchers, in order to find how much, if any, each contributed to the charge to "Repairs."

OUT OF THE FRYING PAN INTO THE FIRE

There is a limit to the number of invoices one can group in a single entry, and the system falls by its own weight. The next step is a journal, purchase invoice record, with lots of columns. Then such an expense account as "Repairs" has its own column; when an invoice is credited to a firm (or to audited vouchers) the corresponding charges are scattered along the same horizontal line in the columns under the various headings, thus:

	Credit	Raw Material	Fuel	Repairs
A. B. Supply Co.	340.00		127.00	
O. K. Clay Co.	42.00	213.00		25.00
Good Supply Co.	85.00	17.00	50.00	35.00

This gets around the disadvantage of the previous method. In running down the charges to "Repairs," one can pick out the invoices from which the charges are derived, without bothering any other invoices. Also, at the close of the month the total of the "Repair" column is charged to the "Repair" account in the general ledger.

This method has a big advantage in still further reducing the number of postings, and also makes it more easy to go back to the original sources of the various expense accounts.

DISADVANTAGES OF THIS METHOD

There are two objections to this form of invoice journal: a book with sufficient columns is unwieldly, and when one has used all the columns the book provides, either the further distribution of the accounts must cease, or one must purchase a larger and still more clumsy book.

In the case of a firm of which the writer once heard, they

had benches at the desks instead of stools; after crediting an item to the proper source, the bookkeeper would slide along the bench until he arrived at the column in which the charge should be located. *One had to be pretty slick to work on that set of books.*

FEWER BOOKS, LESS WORK, MORE INFORMATION

In a system modeled along the above lines, covering several plants with widely distributed operating charges, it may be necessary to run more than one invoice journal (or voucher record). The writer has had experience with a set of books in which postings were made from ten different books, several of which were of the twenty-column variety. Yet, in this instance, the system was reduced to *one single, elastic journal* from which all postings were made to the general ledger, with many important results; for example:

More information was given in smaller compass.

Separate operating accounts were eliminated from the general ledger, making but a few postings instead of a multitude.

Trial balances and statements of any character could be prepared more easily and quickly.

Information along new lines could be provided for at any time without "opening a new account in the ledger."

The writing up of the new single journal was far more simple and easier than was the writing up of the previous set.

A system of cost finding along these lines is applicable to the books of any firm, operating either one, or several, plants.

(*To Be Continued.*)

* * *

"Split Pavers" Wanted

A request has been received from a party in Omaha, Neb., who desires some information concerning a certain brick called a "split paver," the size of which is 8"x4"x1¼". There is a big demand for this brick at the above point, but the yard which had previously supplied it is now oversold and the party in question would like to get in touch with a manufacturer with a freight rate that would permit his getting the brick into Omaha at a reasonable price. The company formerly supplying the brick received a price of about $12, f. o. b. Omaha. Can he sell your product?

SHORT COURSE *and* CONVENTION *at* ALFRED

THE NEW YORK STATE SCHOOL of Clayworking and Ceramics offers a short course in ceramic engineering to be given January 23rd to 26th, 1917, in conjunction with the annual meeting of the New York State Ceramic Products Manufacturers' Association. Designed to meet the needs of those engaged in any field of ceramic endeavor, and especially for practical men whose lessons have been learned from the text-book of experience, and whose schoolroom has been the clay plant, the course promises to be of great value to those whose attend.

An examination of the program, which is given in full below, is sufficient to show the scope of the course. The subjects are sufficiently diversified to appeal to manufacturers in practically all of the varied fields of clayworking, and the lecturers are men especially qualified to present their subjects.

NO FEES CHARGED FOR COURSE

No fees are charged and the course is open to everyone. Housing accommodations can be secured in the vicinity of the university at very reasonable rates, and reservations will be made for those writing in advance, if so desired. Those wishing to attend the short course and spend what will undoubtedly prove to be a most profitable three days at Alfred, are requested to write at once and state the day upon which they expect to be present.

Sessions will being at 10 A. M. Tuesday, January 23rd, and at 9 A. M. on each of the other days of the course. Recess will be taken each day from 12 M. to 1 P. M., and sessions will close at 4 P. M. Each lecture will be from forty minutes to one hour in length, and will be followed by a discussion on the subject presented. Given in detail, the program for the course is as follows:

January Twenty-third

1. Address of Welcome—Dr. Boothe Colwell Davis, President of the University.
2. Recent Developments in Ceramic Kilns—A. V. Bleininger.
3. Some Suggestions from Ceramic History—Professor C. F. Binns.

Noon Recess

4. Cost of Firing—Francis T. Owens.
5. Testing for Impurities in Ceramic Raw Materials—Professor C. H. Milligan.
6. The Testing of Plastic Fire-clays—A. V. Bleininger.

January Twenty-fourth

7. Decoration in Clay and Glazes—Professor C. F. Binns.
8. Electrical Equipment in the Factory—Professor W. A. Titsworth.
9. Research and Efficiency—Professor J. B. Shaw.

Noon Recess

10. Pyrometry—Francis T. Owens.
11. Changes in the Structure of Clay During Burning—A. V. Bleininger.
12. Cause and Cure of Some of the Troubles in Enameling Steel and Cast Iron—Professor J. B. Shaw.

January Twenty-fifth

13. Refractories—A. V. Bleininger.
14. Theoretical and Practical Consideration in Drying Clay Products—Grover Babcock.
15. Defects in Glazes—Professor C. F. Binns.

Noon Recess

16. Round Table, Queries and Answers—All in Attendance.

The school buildings will be open every evening for informal gatherings and discussions, and possibly some illustrated talks on subjects of interest. Adjournment will be taken Friday morning to Corning, leaving Alfred station at 9:39 and arriving at Corning at 11:45. A visit to brick, terra cotta and glass plants will be followed by luncheon, a business meeting and addresses by prominent glass manufacturers. The evening will be devoted to a dinner and smoker.

* * *

The plants of the California Brick Company at Decoto and Livermore, Cal., are soon to be enlarged, the proposed improvements to cost in the neighborhood of $100,000.

DEFINING *the* DURABILITY *of* CLAY PRODUCTS

Some Side Lights on the Determining of Adequate Specifications Which Would Insure the Selection of Well-burned Ware, Able to Stand the Test of Time

By A. V. Bleininger, B. Sc.

Ceramic Chemist, U. S. Bureau of Standards

EDITOR'S NOTE: The following talk was made by Mr. Bleininger at the dedication of the ceramics building, University of Illinois, Urbana, which was held on December 6th and 7th, 1916. It was a discussion of a prceding address by H. J. Burt, a structural engineer of Chicago, who spoke on "Ceramic Products as Structural Matcrials."

Mr. Bleininger's work in the standardizing of clay products is too well known to require an introduction here. The value of the following discussion to our readers lics in its connection with this work and the further fact that it throws some interesting side lights upon the progress of this task. It should, then, be rcad with absorbing interest by all.

MR. BURT has emphasized in his paper the one point of paramount importance in connection with structural materials exposed to the atmosphere, namely the question of durability. This applies not only to clay products but other building materials as well. I need call attention only to the problem of the corrosion of steel which has become such a great field of speculation and investigation. If we are to build for permanency, a condition now reached by our civilization and justified by our modern architecture, this question of weather resistance must receive our earnest attention. In the past this problem has not been of such vital importance owing to the more or less temporary type of construction for which, in many cases, we are duly thankful.

WRITING BRICK SPECIFICATIONS NO EASY JOB

The previous speaker has mentioned also the matter of specifications for brick and the work of the American Society for Testing Materials. This particular committee has been in existence for a number of years. At first it was thought to be an easy matter to write specifications for brick but the task is proving to be quite a difficult one and the final report has not yet been made. It was found necessary to carry on some investigations both with reference to certain points connected with the methods of testing and the classification of the materials proper.

The difficulty has been the great diversity in the character of the brick from different parts of the country.

Brick made from the alluvial clays of the Hudson valley and used in New York City possess entirely different properties from those of the Chicago or the New Orleans district. The hard vitrified brick of Ohio differ radically from the porous building brick of Wisconsin and Florida.

TENTATIVE CLASSIFICATION FOR BRICK

It has been found necessary, therefore, to establish several classes of brick, differentiated according to their compressive and transverse strength and their porosity as measured by the absorption of water. Thus, the tentative classification of brick represented by the following table has been suggested.

Description	Transverse modulas of rupture. Aver. of 5 no less than	Transverse modulas of rupture. No single brick less than	Comp. Strength* lbs. per sq. in. Aver. of 5 no less than	Comp. Strength* lbs. per sq. in. No single brick less than	Absorption, per cent. Aver. of 5 not exceeding	Absorption, per cent. No single brick exceeding
Vitrified building brick	1200	800	5000 or more	4000	5	6
Hard building brick	600	400	3500 or more	2500	12	15
Medium building brick	450	300	2000 or more	1500	20	24
Soft building brick	300	200	1000 or more	800	—	—

*The compressive strength to be determined by testing half brick placed edgewise.

It has been agreed that in classifying brick by means of the proposed three tests, the standing of any set of brick shall be determined by that one of the three requirements in which it is lowest.

HOLLOW-TILE SPECIFICATIONS DIRELY NEEDED

The need of proper specifications is specially marked in the case of hollow building tile which is becoming a more and more important building material. This is especially true since a great deal of confusion exists in the present building codes regarding hollow-tile. It is pleasant to report, therefore, that a committee has been appointed by the American Society for Testing Materials which is vigorously at work testing tile from various districts as well as built-up walls, preparatory to the writing of specifications.

DETERMINING DURABILITY MOST SERIOUS PROBLEM

But the most serious question has been that of determining the durability and weather resisting qualities of brick. How are we to judge the effect of long continued heating and cooling, freezing and thawing, wetting and drying out? It has been assumed that freezing and thawing tests, repeated as many as twenty times would afford a reliable means of differentiating weather resisting from non-weather resisting brick. But this is a time consuming and expensive procedure, and for this reason, no large comprehensive series of tests correlating the resistance to freezing with absorption and compressive strength have ever been made, tho it might be stated that at the present time the Department of Ceramic

Engineering at the Ohio State University has begun an extensive investigation along these lines. The need of fundamental work of this character is obvious.

It has been suggested also that an accelerated freezing test be applied such as the Brard sodium sulphate test. This procedure consists in immersing the brick or other specimens in a saturated Glauber's salt solution and then drying them rapidly. The crystallization of the salt brings about a condition similar to the freezing of water in the pores of the material. In applying these tests several workers have found them to be very sharp and decisive, tho apparently too severe. They destroyed materials just slightly below full maturity and hence, while erring on the safe side from the standpoint of the user, it was not quite fair. Usually not more than five treatments suffice to bring about the maximum destructive effect. However, it would be possible to moderate the test by using a solution of lower concentration.

THE FIREPROOFING AND FIRE RESISTANCE QUESTION

The question of fireproofing and of fire resistant materials likewise represents an important problem in building construction and one which is more complex than is usually thought. This might be illustrated by a few examples. For some time more or less prejudice existed against the use of crushed limestone as the aggregate of concrete in columns and other structural parts. It was thought to be inferior to gravel and sand. As a matter of fact it has been found that the flow of heat into limestone concrete is decidedly opposed by the endothermic reaction resulting in the composition of the calcium carbonate into quicklime and carbon dioxide. Furthermore, the porous calcium oxide resulting from the reaction is an excellent heat insulator owing to its porosity, and for this reason, operates against rapid heat absorption. Again in the case of concrete, the mechanical and chemically combined water contained by it present similar conditions, in the fact that a certain amount of heat is absorped in vaporizing this water, thus retarding the flow of heat and hence keeping down the temperature. This applies still more strikingly to gypsum products where the amount of such water present is still larger.

STUDY OF VOLUME CHANGES IMPORTANT

The study of the volume changes suffered by structural materials, both thermal and permanent, is also of very great importance as may be illustrated by several examples. Attention need be called only to the changes in volume shown by concrete upon drying and upon exposure to humid conditions. Professor White of the University of Michigan has repeatedly shown by accurate measurements that concrete contracts upon drying and re-expands when immersed in water or when surrounded by a humid atmosphere. In fact, alternate contraction and expansion of concrete has been observed during periods of low and high atmospheric humidity. These facts cause us to realize that we are dealing here with a substance possessing the properties of colloidal matter which must be taken into account by engineers if we are to do justice to this valuable material of construction. This point is especially important when concrete is used in combination with other structural materials such as tiles or terra cotta subject only to thermal volume changes.

UNDERBURNING A DANGER IN SILICA BRICK

Again, the permanent volume changes of certain refractories, especially of silica brick, used so largely in the construction of by-product coke ovens, is a matter of paramount importance. All silica refractories expand when re-heated in use but this expansion may be excessive if the material has not been fired to a sufficiently high temperature in kilns. The burning should be carried high enough to convert most of the quartz to cristobalite and some of it to tridymite. It is readily seen, therefore, that underburning may have serious consequence especially when we realize that several millions of dollars may be invested in a single coking plant.

These examples should suffice to illustrate the great need for more exact measurements of the physical properties of silicate products and of sound and comprehensive specifications governing their use.

* * *

Federal Trade Commission Loses Its Leader

Edward N. Hurley, chairman of the Federal Trade Commission, resigned on January 4th to resume his business in Chicago which, according to the Washington correspondent of the Chicago "Tribune," he told President Wilson was suffering from his absence. His resignation was accepted, the President in a recent letter expressing his deep regrets at the decision of Mr. Hurley to sever his connection with so useful a body.

The chairman will leave the commission on February 1st, and Vice-chairman Harris automatically will succeed him.

Mr. Hurley denied reports that he was getting out because of differences with other commissioners over the conduct of the news-print paper and other investigations.

"Nothing but business is pulling me away," he said. "I am building an addition to one of my manufacturing plants in Chicago and I want to be on the job. This is the time for the captain to stick to the bridge."

There has been a good deal of gossip of late to the effect that Commissioners Harris, Davies and Parry are practically figureheads and that Mr. Hurley for months has been compelled to shoulder the entire burden of responsibility and work.

Mr. Hurley's wide business knowledge has been regarded as of great value to the commission in its business investigations. Recently the chairman has devoted much time to a study of business accounting systems. The commission is working out now a system of standardizing accounts.

* * *

Delivery Zones in Cleveland Eliminated

One of the biggest forward steps yet taken by a brick manufacturer to stimulate the use of his product for building purposes, was that taken by the Barkwill-Farr Company, Cleveland, Ohio, which has recently eliminated the zone system of charges on local brick deliveries. This zone system, while a good thing for the nearby contractor, discriminated against the builder in the outskirts of Cleveland, or on the outer edge of the zone, and made his costs so much higher as to put a premium on brick building.

The charges have been twenty-five cents per thousand brick per half mile beyond a certain zone line from the Cleveland factories of the Barkwill-Farr Company. This charge was based upon $9.50 per thousand brick. From now on the uniform charge will be $11 per thousand brick for all deliveries. Increases on prices of tile also are announced by Robert C. Mitchell, salesmanager, but these prices are not governed by the zone system, which was only in effect upon brick. Construction tile measuring 5x4x12 in. has been increased from $22 to $26 per thousand, and on 5x8x12 in. tile from $41 to $50 per thousand.

"Already we find there is an improvement in the demand for brick from outlying districts following the flat price base," says Mr. Mitchell.

ADVANTAGES *in* USING ARCHITECTURAL TERRA COTTA

The Second of a Series of Articles by One Who Is an Authority on the Manufacture and Use of This Excellent Material

By Herman A. Plusch, M. S., Cr. E.

Research Engineer, Abrasive Company of Philadelphia, and Consulting Ceramic Chemist and Engineer

WITH a predetermined lot size and a definite amount of money available for the erection of a building, be it church, school, office building, skyscraper or what not, one of the very important questions to be decided is the kind of material to use.

Terra cotta offers the solution to this and many other of the problems which arise. It is probably the lightest building material, meeting all requirements, that can be obtained. Thus, at once, there is a saving in foundation work. Being of a lighter weight than most materials, less transportation charges are incurred than on other more solid and heavy building materials.

TERRA COTTA IN THE SAN FRANCISCO EARTHQUAKE

Another advantage of the light weight of terra cotta (this material weighs about 65 lbs. to the cubic foot) as against stone (about 125 lbs. to the cubic foot) was noticeable in the San Francisco earthquake, where it was decidedly illustrated that, due to its lightness and method of anchorage to steel frames, terra cotta was better able to withstand the shock than any other building material.

The time element is always a most important factor in construction work and here terra cotta comes to the front. Most manufacturers, after the receipt of complete information, can make deliveries in from six to eight weeks, and can continue deliveries as fast as the material is needed.

Terra cotta, being made only four inches thick—on the average—makes thinner walls possible and consequently permits greater room space.

WIDE RANGE IN COLOR, TEXTURE AND STYLE

Color, texture and style must be considered in the erection of any important building. It is in the settlement of these three considerations that terra cotta stands pre-eminent.

Terra cotta gives the widest range and most liberal choice in the selection of color, texture and style, more so than any other building material obtainable.

Smooth or textured surfaces to match or to harmonize with plain cut stone, tooled surfaces to harmonize with or to have the appearance of stone, granite surfaces and color applications may be combined to produce granite effects, which are so like the original material that the casual observer, and often more careful critic, cannot distinguish the imitation from the natural stone.

Granite terra cotta, like many of the natural stones which bear this name, will not crumble away or be attacked by the weather or by acid-laden air, and in case of a conflagration, will be much less injured, as it has already been proved by fire, as well as being fireproof.

TERRA COTTA PERMITS OCCASIONAL "FACE WASH"

Matt and lustrous glazed terra cotta is serviceable where the building is of such a nature that surface cleanliness is desirable. Buildings of this type, when washed constantly, present a fresh and clean appearance.

An example of this, as well as the startling difference between the appearance of the terra cotta wall before and after cleaning, is shown in the accompanying illustration of the Bulletin building, Philadelphia. Erected only eight years ago, its lines have been gradually hidden under a coat of dust and soot, which has settled on it. Thanks, however, to the forethought of its designers, it is an easy matter to restore the whole structure to its original spotless appearance by washing its glazed sides with soap and water, mixed with a little lye, in much the same manner that a housewife washes and rinses her dishes.

An interesting feature concerning the cleansing of this building is that the portion including the five windows on the right has recently been completed and is clean and new. No difference whatever can be noted between the new and the old sections after the latter has been scrubbed. This is an advantage in the use of terra cotta that should not be minimized.

The dome on this building is done in white ornament with a light green background and has now been cleaned. It looks as bright and is as capable of presenting contrast as the day it was erected. The Bulletin building is very prominently located in the City Hall Square in Philadelphia. The terra cotta on this structure was furnished by the Conkling-Armstrong Terra Cotta Company of that city.

The introduction of polychrome or colors as desired may be resorted to where the style of architecture permits or demands it, or where the purpose for which the building is erected may be consistently displayed. In no other building material is there offered such latitude for choice of ornament as in terra cotta, especially when cost and results obtainable are compared.

The economy in reproduction enters in here and places ornamental terra cotta in a cost class of its own.

WAY MADE EASY TO SECURE THE MATERIAL

Besides the many advantages in the use of terra cotta enumerated thus far, is the ease with which contractor and architect can secure the material. All of the manufacturers of terra cotta employ trained draftsmen and they will carry out the architect's plan in detail, and often from rough sketches only work up the architect's drawings. In fact, some terra cotta manufacturers will not only design but will even erect buildings, thereby assuming nearly all of the responsibility with the added assurance to the owner that the manufac-



The Bulletin Building, Philadelphia, in the Process of Getting a "Face Wash"

turer will place his material in the best possible manner and to the best advantage, resulting in their mutual benefit.

So much for the advantages of terra cotta as applied to exteriors.

HAS WIDE USE FOR INTERIORS

Next comes lights wells, and here large ashlar blocks of white glazed terra cotta make an ideal light-reflecting and sanitary building material. Elevator shafts with floor numbers in color are effective as well as satisfactory.

The swimming pool, scum gutters, balustrades, and such rooms as cafes and grills, may be executed in faience or polychrome terra cotta in permanent colors—colors that never have to be done over and which are easily cleaned and kept clean.

The patio of a residence may be executed in cream and matt terra cotta at one-tenth the cost of marble and if properly done, will be more beautiful than marble and present a softer and more pleasing appearance. Less formal entrance halls in apartments will lend themselves to permament color treatment, and hard wear and hard usage will not affect a well-burned material.

We know of no other manufacturers of building materials so willing, so anxious and so well equipped to co-operate with architects, builders and owners in giving them what they want as are the manufacturers of terra cotta as a whole.

TRIBUTE OF A NEW YORK NEWSPAPER

The New York "Times" of May 14th, 1911, states that "terra cotta is the only building material that combines practical economy with architectural beauty," and further, in part, that "altogether it is apparent that the influence of terra cotta on architecture has been of considerable moment, and judging by the past few years, it seems that terra cotta will loom even larger actually and figuratively, on the architectural horizon of the future. Certainly, the architect can find no material more flexible, more easily modeled to his design. Nothing could be more durable. Its economy insures its use for a commercial building, and its dignity when properly employed, for the monumental. The fact that it is thoroly tested by time and that improvement and development are steadily advancing, insure an ever-growing demand."

The above prediction, made five years ago, has proved true and terra cotta is now more largely and widely used than ever before. We venture to predict that the industry as such in this country is still in its infancy.

LEADER'S DEATH CLOUDS JERSEY CONVENTION

WITH AN ATTENDANCE of more than one hundred members, the third annual meeting of the New Jersey Clay Workers' Association was held at Rutgers College, New Brunswick, N. J., on December 24th and 25th. Owing to the death of the president of the association, Charles Weelans, on December 14th, the meeting was opened by C. A. Bloomfield of Metuchen, N. J., who spoke feelingly of the sad death of Mr. Weelans. The late president had taken an active part in the preparations for the meeting and had made plans to be in attendance.

HOWARD VALENTINE ELECTED PRESIDENT

On account of illness, the vice-president of the association, Howard Valentine of Woodbridge, N. J., he was unable to be present. In recognition of his valued and untiring services as vice-president, Mr. Valentine was again honored by being elected as president of the organization for 1917. A. M. Maddock of the Thomas Maddock Sons Company, Trenton, N. J., was elected to the vice-presidency, and George H. Brown, director of the ceramics department at Rutgers College, was chosen as secretary and treasurer.

The program of the convention was filled with papers and discussions that were of great value to those in attendance. Professor Parmelee, in his illustrated lecture on the "Fundamental Characteristics of Clays," traced in a clear and forceful manner the changes occurring in clays during the various stages of preparation and burning. Mr. Parmelee's paper was of especial value since the use of technical terms and symbols, so characteristic of papers treating this subject, was avoided.

A. V. BLEININGER SPEAKS ON "PORCELAIN"

A. V. Bleininger as usual proved a drawing card for the convention and delivered a lecture on "Porcelain," illustrated by lantern slides, which described the changes taking place in ceramic mixtures of clay, flint and fieldspar. By the use of the microscope, the Bureau of Standards is able to determine approximately the

temperature to which a piece of porcelain has been fired. Mr. Bleininger's comparison between imported and domestic porcelains was enlightening.

POSSIBILITIES OF THE MICROSCOPE REVEALED

Professor Parmelee's second lecture was upon the "Practical Value of the Microscope to the Potter," and, together with Professor Bleininger's paper, served to illustrate and establish the value of the microscope for use on a ceramic plant. With but very little training and practice, it was shown, the practical clayworker may solve many problems arising in the process of manufacture with the microscope. In the hands of a technically trained ceramist, the microscope is rapidly becoming recognized as a valuable plant asset.

W. A. Hull, in his talk on "Heat Transmission," emphasized the value of kiesulguhr insulating brick which are gradually being introduced in the insulation of kilns. By figures, Mr. Hull established the value of these materials in the saving of fuel in the firing of clay products. Mr. Hull's paper precipitated a lively discussion, as did the one on "Pyrometer Possibilities," also presented by him.

REPORT MADE ON INVESTIGATION OF N. J. CLAYS

In a progress report on the investigation of New Jersey clays, being conducted by the ceramic department at Rutgers College, C. F. Geiger established the value of this work to date, and emphasized the necessity of its continuation. By means of charts and lantern slides, a comparison of the properties of the so-called sagger clays, retort clays, terra cotta clays, and so forth, was made by Mr. Geiger. The number of New Jersey clays of very high refractoriness encountered in this investigation is significant. More than forty-two per cent. of the clays have softening points of cone 32 and above. The investigation has been of great value to mine operators in classifying their clays and to the users of the clays in selecting materials having the properties requisite to the production of the class of ware they manufacture. A set of tile burned from samples of his clay that have been submitted at from six to ten different cones is submitted to each clay mine operator.

VALUABLE LECTURE GIVEN ON "REFRACTORIES"

W. R. Rochow in his illustrated lecture on "Refractories" proved himself a master of this subject. In his discussion of the changes occurring in silica-brick during manufacture, Mr. Rochow established the value of research work as applied to this branch of the ceramic industry. By the use of the microscope and volumeter, the manufacturer is enabled to select those materials which are best suited to the manufacture of silica-brick and to reject those which are not. He is also enabled to determine the best burning treatment for this class of materials.

The topics for discussion proved a valuable addition to the program and induced lively discussions, and exchanges in experiences, since they encompassed such interesting subjects as heat insulation, scumming, domestic and imported flints, grinding in ball mills vs. blunging, soaking, and pugging vs. the wet pan treatment for sagger mixtures, and the coal situation in New Jersey.

The summer meeting of the association will, as usual, be held at Trenton, N. J., during the month of June.

* * *

G. W. Thurston, secretary of the Western Paving Brick Manufacturers' Association, with offices in the Dwight building, Kansas City, Mo., has announced that the arrangements are now complete for the annual meeting of the association on January 18th and 19th.

Detroit Brick Manufacturers Declare Speculators Cause Fuel Shortage

In the belief that Detroit's coal shortage has been caused primarily by speculators, doing what is termed a "vest pocket" business, the Detroit Brick Manufacturers' and Dealers' Association thru its manager, William B. Wreford, has sent a letter to the Interstate Commerce Commission, urging drastic legislation prohibiting reconsignment of shipments except under penalty of $10 a car for each reconsignment.

The letters states that Detroit now has about one hundred brokers, who have no offices or yards, but simply do their business "from a vest pocket." The letter continues that all large coal consumers have contracts at lower than present market prices, and that about forty per cent. of the total amount called for by the contracts is being supplied.

A number of instances are given where Detroit manufacturers and other large consumers are receiving from two to half a dozen calls a day from these brokers, who wish to sell them coal at market prices, thus demonstrating to the satisfaction of the association that no real shortage of dangerous proportions would exist, could these brokers be eliminated.

The letter asserts that brokers reconsign cars among themselves, sometimes keeping a car loaded in the terminals for at least thirty-two days at a cost of only $15 by using the two free days before reconsignment.

COMING CONVENTIONS

Jan. 15th, 16th and 17th—Illinois Clay Manufacturers' Association, at Champaign, Ill. Headquarters Beardsley Hotel.

Jan. 15th to 19th—Iowa Clay Products Manufacturers' Association, at the Iowa State College, Ames.

Jan. 16th, 17th and 18th—Nebraska Brick and Tile Association, at University of Nebraska, Lincoln.

Jan. 18th and 19th—Northwestern Clay Association, at Minneapolis, Minn. Headquarters Hotel West.

Jan. 19th and 20th—Western Paving Brick Manufacturers' Association at office of Secretary, Kansas City, Mo.

Jan. 23rd, 24th and 25th—Manufacturers' Week at the New York State School of Clayworking and Ceramics, Alfred, N. Y.

Jan. 23rd, 24th and 25th—Canadian National Clay Products Association, Hamilton, Ont. Headquarters Royal Connaught Hotel.

Jan. 29th and 30th—National Terra Cotta Society, at New Orleans, La. Headquarters Grunewald Hotel.

Feb. 1st and 2nd—Wisconsin Clay Manufacturers' Association, at Milwaukee, Wis. Headquarters Republican House.

March 5th to 10th—National Brick Manufacturers' Association, at New York, N. Y. Headquarters McAlpin Hotel.

SOMETHING *to* CONSIDER *for the* NEW YEAR

Have You Thought of Substituting Motor Trucks for That Expensive and Antiquated Method of Horse Delivery You Are Now Following?

MOTOR TRUCK achievements in the clay products manufacturing industry have been a subject for much discussion and comment—the tremendous possibilities for expansion offered to the firms employing this type of vehicle for delivery purposes having been dealt with in the columns of "Brick and Clay Record" many times. But the charm of the story never wears off. Constantly new examples of large increases in business attained solely thru the use of the motor truck are claiming attention.

With such examples before us as those afforded by the former American Brick Company of Cleveland, Ohio, whose fleet of five trucks brought about an increase of eight hundred per cent. in production in two years and extended the radius of the company's market from a distance of four miles to practically every part of the city in which it is located; by William Conway, a brick manufacturer of Philadelphia, Pa., whose delivery costs have been appreciably reduced on long hauls, and whose sales have taken a decided jump since the operation of the truck, and countless other instances which present results equally as attractive, there seems to be little reason for our hesitancy in applying a twentieth century method to the solution of our delivery problems.

TRUCK ACHIEVEMENTS IN OTHER FIELDS

Having heard and read of many of the feats accomplished by motor trucks in the clay products industry, a little thought given to the results accomplished by their use in other industries, contending with similar delivery problems, would undoubtedly be conducive to a better understanding of the unlimited possibilities of the truck in our own field.

In an article entitled, "Making Your Delivery Equipment Increase Sales," S. V. Norton presents in a recent issue of "System" a number of typical instances of how motor trucks have been used to increase and develop business, in which he states that, generally speaking, a merchant is effective only as far as he can reach. Where wheels will go and return in the same day is his territory. Beyond this is the territory of some one else.

If the merchant or manufacturer depends entirely upon horse delivery, this circle is sharply limited by a radius of ten miles, for it is universal testimony that the average team cannot, with regularity and profit, cover more than twenty miles a day. If he makes use of a motor truck the radius of this circle of effectiveness would be increased to anywhere from fifty, or sixty, or even, under some conditions, to seventy miles.

HORSE DELIVERY CHECK ON GROWTH

Many a business is so situated with respect to its productive power that it could expand indefinitely if means could be devised for delivering its increased output in a satisfactory and economical manner. In the past the horse has placed a heavy check on growth. Businesses which have expanded have done so under difficulties that might have easily been surmounted by the use of motor trucks for delivery purposes. Business men would undoubtedly do well to count the cost of various systems of delivery, and consider whether their present system is the most economical; and whether—if it is not—they can afford to try out trucks, which usually cost more at the start, but which are, under proper conditions, cheaper in the end.

It is not at all impossible that much of value might be gleaned from the account of the manner in which a large New York contracting company made the substitution of the motor truck for mules pay a handsome dividend, given by Mr. Norton. In 1911 this company purchased, "against its instinct," a five-ton truck, as the result of persistent and, for the most part, unanswered arguments of a well informed truck salesman. After experimenting a little with the truck, it was found that in place of the eight yards of gravel a day that formed the limit of the mule team's capacity, the truck transported forty-eight yards a day, with this difference increased where steep inclines, either on the road or at the delivery station were encountered.

TRUCKS EXTEND MARKET AND WIN BIG JOB

It was not long after the installation of the first truck that this company bid upon a large job in connection with the construction of the Brooklyn subway and, due to its increased delivery facilities, landed a good portion of the work—an achievement previously undreamt of because of the long haul involved. This was a revelation to the company, and it immediately began a systematic policy of replacing mules with motor trucks. In the period between July, 1911, and June, 1916, it purchased twenty-three five-ton trucks, and cut its force of mules in this period from one hundred and ten to four. Its radius was then no longer one of ten miles. While its business increased fifty per cent., its housing problem was reduced over one hundred per cent. Stables have become warehouses, contributing to profit instead of expense.

As this fleet grew, built up of steady purchases of trucks of the same make, additional advantages began to assert themselves. It soon became apparent that a special repair and machine shop could be maintained. The expense of this, distributed over a score of trucks, was very slight on each truck. It was found possible to maintain a corps of expert mechanics, who, working always on the same type of trucks, soon became unusually proficient.

Since periodic overhauling and inspection are essential to long life and efficient operation of motor trucks, close tab is kept on the date on which each of the trucks was last overhauled. No hard and fast rule is made that such and such a truck must be taken off the road on such and such a day. Instead, when there is a temporary lull in work that truck which, in the records of the office, has gone the longest without overhauling, goes to the shop. Customarily, two or three trucks are taken off at the same time, and in practice this admirably flexible system has been found to work out with considerable regularity, while at the same time the operation of the business is unhampered.

Practically the entire experience of this contracting com-

pany is a primer that might be read and observed by many manufacturers and dealers in the burned clay products industry, since, in many cases, the requirements upon the truck and the conditions under which it must operate are very sim-

ADVERTISING VALUE OF TRUCKS

However, swift and economical transportation are not the only factors in the use of a motor truck that influence the expansion of business. Another very important and potent one is that of the advertising value attached to trucks. Unquestionably, the motor truck, taken by itself, possesses considerable advertising value. Its speed and capacity, writes Mr. Norton, impress the eye. Its great strength, its power of performance in comparison with the limited work of a horse, excite admiration. Its cost is a topic of gossip. Its very machinery is a subject of interest. It stands as symbolic of progressiveness in transportation.

He who installs a motor truck is at once credited with being modern, enterprising and up to date. If he claims to give better service, he may even be believed—simply because he has a truck, tho he will, of course, have to have more than that to back his claim. *He gains prestige!*

The advertising value of motor trucks is indeed rated as a close second to its speed as a factor in increasing business. A shoe dealer in Philadelphia, whose store is some distance from the shopping district, bought a truck and ordered a body built in the shape of an enormous shoe. The vehicle creation made an enormous hit. Wherever it went on busy streets it was the subject for comment. People soon became to know this shoe dealer better than many a one longer established. As the result of the purchase, an increase in his business of one hundred per cent. was realized by the shoe dealer. The advertising cost him nothing, and he had to have a delivery truck anyway.

These are but a few instances of the tremendous possibilities for business expansion and increased profit made possible by the motor truck, and altho they may not "jibe" perfectly with conditions existing in the burned clay products industry, yet they represent concrete examples of things accomplished, and for that reason will bear close study. In the case of the former American Brick Company cited at the beginning of this article, we have as enviable and interesting an instance of motor truck achievements as could be obtained from almost any other field, and, doubtless, there are countless other instances within the industry that would rank well with the American company's truck experiences.

* * *

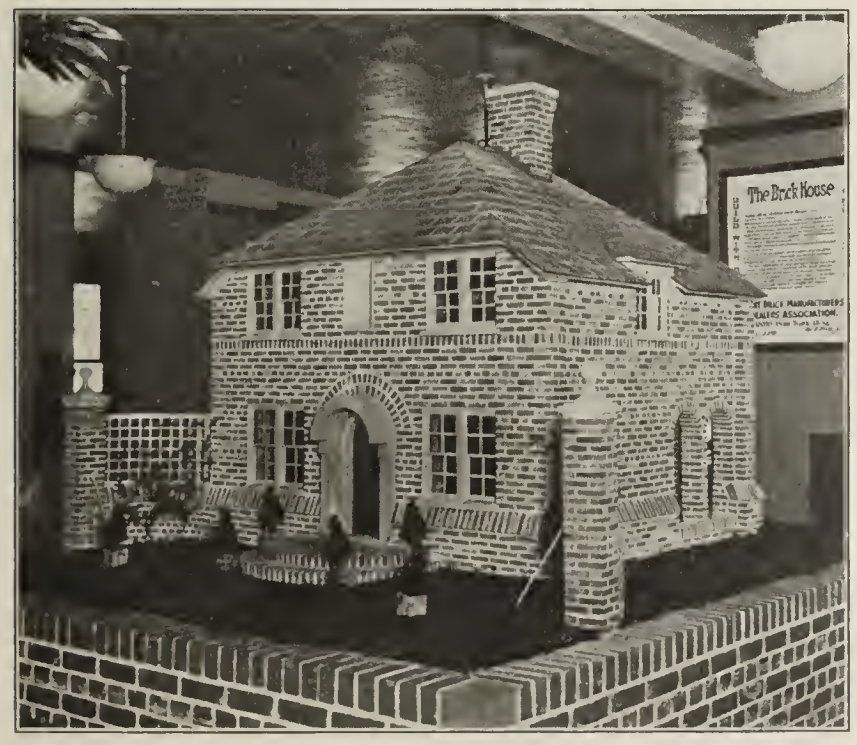
Ohio Material Dealers to Gather in Columbus

The annual meeting of the Ohio Builders' Supply Association, which has a membership of approximately four hundred and fifty, consisting of lumbermen, brick and clay products dealers and general material men, which was to have been held in Cincinnati this month has been changed and instead will be held in Columbus, Monday, Tuesday and Wednesday, January 22nd, 23rd and 24th. Headquarters will be maintained at the Southern Hotel, where the business sessions will also be held. It is expected that more than three hundred and fifty out of the total membership will be in attendance.

The Ohio Builders' Supply Association is a comparatively new organization but it is one of the most active in the state. The state is divided into thirty sub-districts, all of which have now been organized with one exception.

MINIATURE HOME SPEAKS *for* DETROIT BRICK

WHAT is probably the only exhibit of its kind in the country has been completed by the Detroit Brick Manufacturers' and Dealers' Association. The display, the purpose of which is to advertise common-brick, is a miniature brick house, complete in every detail and erected in the exhibit rooms of the Builders' and Traders'



This Little Brick House Has Proved an Attraction to All Who Visit the Builders' and Traders' Exchange, Detroit

Exchange of Detroit, Mich. The exchange recently leased the entire fourth floor of the new Penobscot building for its headquarters and exhibit rooms, where everything is displayed that goes into the making of a home or the building of a factory, and the brick house is the center of the attraction.

The house is six feet square and two stories in height, constructed entirely of hand-molded miniature brick made from Detroit clay the same as that which is used in the manufacture of Detroit's famous red brick. These small brick measure 3½ x 1¾ x 1 inch. The little house was built under the supervision of Stokes and Whittingham, from plans prepared by William B. Stratton, architect.

The house, an illustration of which is shown herewith, is complete in every detail. There is a living room, dining room, sun porch and kitchen on the first floor, with four bedrooms and a bathroom on the second floor. It is lighted with electricity, has hardwood floors thruout and is completely furnished. The roof is of slate, cut in proportion to the miniature brick. Surrounding the house is a lawn with gravel walks and shade trees. The house stands on a platform, or wall, two and one-half feet in height, constructed of Detroit-made common-brick, laid up in English bond with white mortar joints, the same as the house, the wall being the only standard-size common-brick exhibited.

Two days each week, various classes of children from the public schools of Detroit are invited to visit the exchange exhibit headquarters and prizes are awarded for the best essays written about the exhibits by the pupils of the different grades. Strange to say, not a single essay has yet been written that does not mention the little brick house, which speaks volumes for the attractiveness of the miniature residence. Detroit architects visit the exhibit rooms daily with their clients to make their selection of materials and equipment.

MARKETING *the* PRODUCT

Helpful Articles and Timely Suggestions for the Dealer and the Manufacturer's Sales Force

A SHORT LESSON IN THE PROPER USE OF BURNED CLAY FACING MATERIALS

DRESSING A BUILDING in proper style is a subject that is claiming an ever increasing amount of attention in many of the larger American cities fortunate enough to have inaugurated city beautiful propagandas. Much discussion and agitative work is being diverted into



A Harmonious Combination of Face and Common-brick Has Made All Four Sides of This Industrial Building Pleasing and Attractive

the channels of proper building by the realization that the noble purpose of all the parks, boulevards, and civic monuments will have failed to a greater or less degree unless a distinct improvement in the mode of dressing a building in its permanent frock is effected. Without a doubt, the streets of a city are its show windows, but beauty in the streets alone is of little value unless the display, which consists of the buildings which face upon them, is attractive enough to make a pleasant appeal to the sense of beauty.

FACE-BRICK FRONT A MODERN PRACTICE

Twentieth century commercialism, with its characteristic disregard for beauty, has made it the custom for builders, ranging from those who control the construction of million-dollar edifices down to the small home-builders who pay for their humble treasure little by little, to lavishly "dress up" the front, or face, of the building with the best that is to be had, and leave ugly, oft-times repulsive, side walls, entirely out of harmony with the beautiful facades, open to view from long distances on the street in both directions. In fact, it is often the case that the blank walls of the structures are open to the view of many more people and can be seen from a far greater distance than the "swell" face in front of which one must stand to appreciate it.

As a class, the individual homes of citizens of moderate means are architecturally more attractive than the more pretentious, modern apartment buildings, which are increasing by the thousands every year. And if any one set of buildings that is being erected can be singled out as the least afflicted by the malady of unbalanced building, it is that being constructed by the cities themselves, which, it seems, are endeavoring to set an example to the private builder. Fire-houses, schools and other municipal structures, the great majority of which are built of brick, are, as a rule, erected on all four sides with the same brick that has been used in the construction of their faces. That offense to the eye—the blank wall—is a missing quantity in most of the city's buildings.

LITTLE REAL REASON FOR ITS EXISTENCE

An examination of this mode of building brings to light little that justifies its existence. There is, in reality, no more reason for a building's dress being lavishly ornate and beautiful in the front and shabby on the other three sides, than there might be for a man to wear a suit, the front of which bore the earmarks of everyday business attire, neat and presentable, but which was made up in the rear of patches, or goods that merely formed a support for the "face"—either similar in appearance or decidedly unlike the facing material. While the absurdity of this is apparent, yet the



"Tuxedo" Front and "Union Suit" Rear on This Building Are the Unpleasant Results of Concentrating Face-brick on the Street Surface

practice of putting a "Tuxedo" face and a "union suit" rear upon our buildings seems to be accepted with a

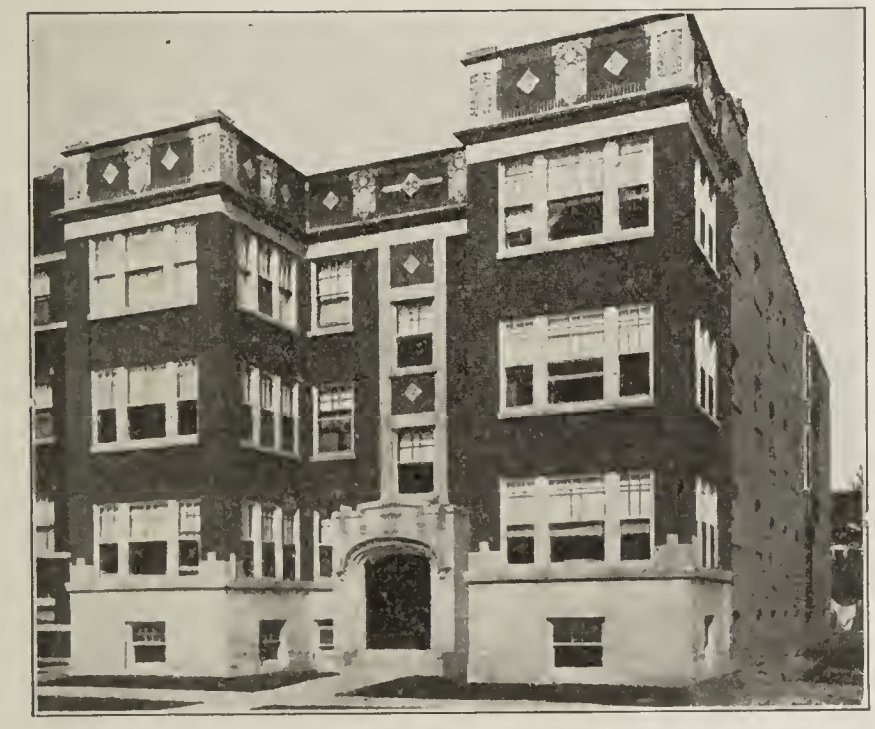
sort of passive admiration by those upon whom the "deception" is practiced.

If asked, the average builder will advance one of two reasons for using this type of construction; either that the financial saving effected by the use of common-brick in the rear and side walls, when a face-brick has been used in the front surface, is sufficient to warrant the sacrifice of beauty made, or that the possibilities are very great that another building will soon be built up so close as to cover the blank walls, or render ineffective the additional beauty obtained by the use of the facing material on all sides.

EXPENSE OF PROPER TREATMENT IS VERY SMALL

The first of these positions is, however, hardly tenable. By the use of face-brick, for example, all around the building in place of just on the front surface, the total cost of the building is increased only a portion of one per cent.—a ridiculously small expense when the one hundred per cent. increase in beauty that is obtained by the use of that material is taken into consideration. Furthermore, even this small item greatly facilitates the selling of the building when a transfer is desirable, and undoubtedly brings a decent dividend on the additional original expenditure, in the selling price obtained.

There is a certain amount of justification for the second reason given, which lays the blame to the possibility of another building covering up the inaesthetic sides of the structure. Were the diversions from good building, that is, the use of the same material on all sides, made only when the consideration of concealment influenced the decision of which material was to be used, the situation would be tolerable. However, this does not seem to be the case. Practically without exception, the buildings we encounter within an hour's walk in any of our cities are evidences to the contrary. They all have attractive and pleasing fronts of face-brick, which, as tho pasted on and



Not as Much Face-brick Has Been Used in the Beautification of This Six-family Building of Great Value, as in the Humble Cottage of the Upper Picture

a separate part of the building, terminate six inches or a foot around the corner, to be continued by a wall of common-brick, the color of which is entirely out of harmony with the face of the building.

With the same lack of consideration for beauty, those walls of buildings which look out upon alleys, courts, or over adjoining structures, are finished in a style that sets them apart from the face of the building.

HARMONY IS REAL QUESTION INVOLVED

As one writer several years ago in "Harper's Weekly" so aptly put it, it is not a question of sincerity for there is no real concealment. If it were, it would not be so



A Pleasing Example of the Proper Use of Burned Clay Facing Materials—Face-brick Used on the Four Sides, Rather Than on One

bad. It is a question of harmony and artistic solidity, unity, simplicity, and even decency. Nor is the difficulty of a cure chiefly a matter of financial economy, tho the average builder would no doubt promptly put it that way. The fault is that evidences of care and design are not evenly distributed wherever they will show; that the thinness of the front veneer is as shamelessly revealed at the edge, as a tawdry lining is disclosed in a torn overcoat. Less money might well be spent upon the front for the sake of harmony of the whole structure.

It is not entirely a question of the price of the brick used in the front and sides of the building, but rather of the inharmonious effect produced by the use of different materials upon different sides of the building. Not only does this apply to the use of face-brick on the front of the building and common-brick on the sides and rear, but it also applies to the use of a forty-dollar glazed brick, or seventy-dollar enameled brick on the face, and a twenty-dollar pressed brick on the other surfaces.

SHOWING THE PROPER USE OF TWO KINDS OF BRICK

The proper use of face-brick and common-brick may, in many cases, produce very satisfactory results. This is especially true in the construction of factory, or industrial buildings, as may be seen in the accompanying photographs. One of the buildings illustrated shows the face-brick used in "dressing up" the front of the building only, while the other presents a very much more attractive and pleasing effect by a careful treatment of all sides and the use of face and common-brick entirely around the building. There can be no doubt that the latter of

the two instances is a preferable treatment and lends more beauty to the structure than does the first.

And because a certain amount of development would be bound to take place along this line, it is a debatable question if the manufacturer of common-brick would, in the end, be the loser. The substitution of face for common-brick in the construction of homes and apartment buildings would take but little away from the common-brick business since only the shell would be substituted—common-brick would still be used in backing up the veneer of face-brick. And its increased use in the construction of industrial buildings, as a result of the increased amount of beauty that would be made possible by a proper combination with other materials, would be enough to offset the loss cited.

NOT ALL "VELVET" FOR THE FACE-BRICK SALESMAN

Neither would the adoption of the higher standard of building be without its demands for sacrifices on the part of face-brick manufacturers and dealers. In many cases, the arguments that the latter are using for the use of face-brick all around would apply to the use of other materials. Should the construction of a church, school or residence be contemplated and stone or other material be decided upon for the face, it would be poor policy for the brick man to suggest the use of brick that might even resemble the material chosen for the face, on the other sides. Here, as in the case of the common-brick manufacturer, any losses scored on this account would easily be made up in big increases in other ways.

SPICY SUGGESTIONS FOR THE SALESMANAGER

Study Mortar Colors

Every face-brick man ought to know something about mortar colors. In fact, the sale of these colors is an important side-line and, if the salesman is properly equipped—meaning expert in the treatment of the color question—he can make his knowledge of this specialty a good lead to the interest of brick prospects. The only way to get this knowledge is by study, practice and experiment. The exhibit room offers plenty of opportunity for work along this line and, when new panels are put in, special attention should be given to the question of mortars. In fact, a panel that is laid up attractively, as to the color of the mortar, is doing its part to sell the brick, because that feature will help to create a pleasant impression on the owner or architect. Putting it briefly, mortar colors are an important division, and should be studied accordingly.

"Build With Brick" Slogan Has Competitor

No Upkeep, Less Insurance, Permanent Beauty, No Paint—What Is It? And even the youngest of the youngsters in the class to which the question is put shout out the response—"Brick."

Then, argues John J. McCoy, vice-president and treasurer of the Wisconsin Face and Fire Brick Company, Milwaukee, Wis., whose master mind gave birth to this catchy and descriptive creation, if even these school "kids" have no hesitancy in naming the material which meets all of these requirements, why should older people, with years of worldly wisdom crowded under their hats, falter in deciding upon the material to use in the construction of the contemplated project?

They shouldn't, and to tell them so, the Wisconsin com-



pany has had a large number of blotters carrying the accompanying illustration distributed to the builders in its city. Further than this, the "Build with Brick" slogan has been supplanted in the large signs used by the company upon those buildings under construction in which its materials are being used, by a larger and more impressive drawing of the professor, black-board, "kids" and brick.

If you like the idea and can see advertising merit in it, use it yourself, if you are outside of Milwaukee. The "inventor" has taken out no patent papers on it, and freely extends to you the liberty of reproducing the clever drawing on your own advertising matter.

Lost a Sale Thru Lack of Common Courtesy

The work of the man in the brick salesroom does not greatly differ from that of the salesman in any other retail establishment. Each sale, of course, is larger than that of the shoe salesman, or the grocery clerk; but otherwise the general proposition is the same. Customers enter, have to be waited on courteously, shown the goods and told the prices, and the reasons why this brick at such-and-such a price is more desirable for certain purposes than the other at another price. And, by the same token, interest in one customer should not be permitted to be the cause of discourtesy, even of a negative sort, to another customer.

A hard-working brick salesman learned this fact the other day, rather to his cost, as he ruefully admits. He was deep in the work of convincing a prospective builder that he ought to build with brick and that he ought to use a certain brick for which the salesman in question was particularly strong. So interested did the salesman become in his work that, unfortunately, he did not even notice that he had another visitor; and, as it happened, there was no one else in the salesroom at the time. So the other visitor wandered in, ungreeted, wandered about restlessly, behind the interested salesman and the interested customer, looked at the brick panels for awhile, and then wandered out again. "And, by gum, another brick man was mean enough to call me up and tell me about landling a cracking big order from this chap," said the salesman. "He got sore over having to wait, it seems, and went away and bought elsewhere, taking much pleasure in telling everybody that I'd lost the order by lack of ordinary courtesy. What do you know about that?"

The answer, of course, is that it is always easy to stop a moment, even if in the middle of a sale, and ask a visitor to make himself at home. It may mean an order and, anyway, it is one of those bits of business-building which cost nothing, and may be worth much.

The SUPERINTENDENT

Helpful Hints for Practical Men Whose Problem is Maximum Production With Minimum Cost

Keep Snow Off Kiln Tops

Too much attention cannot be given at this time of the year to the kiln crowns. It is especially important to prevent the accumulation of snow on the tops of the kilns. Altho heavy and almost daily snow storms make it a difficult task to keep the tops of those kilns not under fire in good condition and free from snow, yet the results which invariably follow a neglect of this work are costly enough to warrant daily attention being given to it.

When snow is allowed to accumulate on the crowns between burns, alternative periods of warmth and excessive cold cause the snow first to melt and run down into the interior of the crown and side walls of the kilns, and later to be caught there and frozen. The melting snow very readily enters into the body of the porous fire-brick lining and at the approach of a lower temperature it freezes. The effect of this action is easily apparent, the old story of the water-filled jug finding a most worthy rival in the manner in which the expanding water cracks and disintegrates the costly fire-brick.

If the lighting of the kiln fires causes the melting of the snow on the kiln crown, and a consequent absorption by the fire-brick of a large amount of moisture, the sudden application of intense heat causes the water to evaporate very rapidly. Often steam pockets are formed that explode with sufficient force to cause a decided weakening of the fire-brick.

In the case of both the freezing and evaporation of water the result is much the same. The rapid expansion in both instances materially reduces the period of service of the refractory brick.

It would be an exceedingly wise policy, therefore, to use the broom freely on your kiln tops and keep them absolutely free from snow. Your kiln repair costs, burning costs (which would be materially lessened by the saving in the heat units otherwise necessary to melt the snow and then dry out the kiln) and the amount of trouble you will have with the kiln will all be reduced a considerable amount in reward of your efforts in this direction.

Estimating Brick Required in Circular Structures

Without a doubt, the chart shown in the accompanying illustration will be found exceedingly useful in determining the number of brick required to make up circular sections, such as are used in sewers, chimneys and circular brick columns, and can be relied upon to give a comparatively accurate figure.

In using the chart, it is only necessary to lay a straightedge across it a few times and find the mid-point on column "C," which indicates the number of brick required.

For example, the number of brick needed to build a circular brick sewer one hundred feet long, the wall thickness being eight inches and the dimensions "D+T" shown on the chart being thirty inches and the number of brick per cubic foot figured as twenty, could readily be determined by using the chart in the following manner:

Connect the twenty in column "B," representing the number of brick per cubic foot, with the thirty in column "E," which is the over-all diameter of the sewer, and locate the intersection with column "C." Then connect the one hundred in column "A," which shows the length of the sewer, with the eight in column "D," which represents the thickness of the sewer wall, and locate the second intersection with column "C." Then, by means of a pair of dividers or a rule, find the mid-point between the intersections, which gives the answer to the problem. In this case, the number of brick required would be very close to ten thousand.

A very interesting thing about the chart is the fact that it gives the number of brick needed in the construction of either

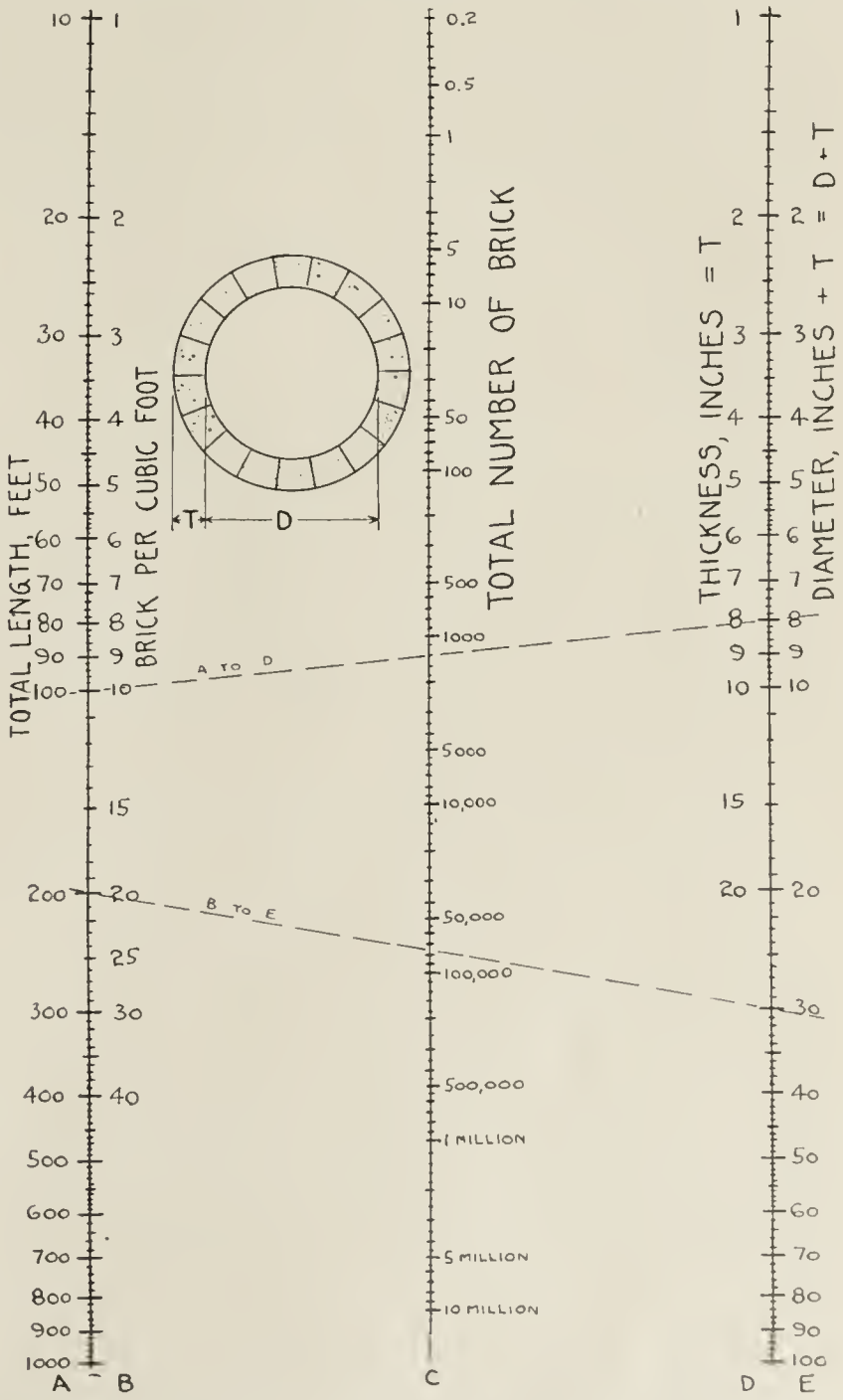


Chart to Be Used for Estimating Number of Brick Required in Hollow or Solid Circular Structures

solid or hollow circular brick structures. When a structure is solid the dimension "D," of course, becomes zero, the dis-

tance "D+T" is equal to "T." The two lines from columns "A" and "B," therefore, run to the same point, but the method of finding the total would be the same as that already described.

As will be noted, the range of the chart is very wide, running to ten million brick. It will give the number of brick required to make a structure one thousand feet long, or high, and it includes all ordinary diametral and thickness dimensions. It also includes brick as small as forty per cubic foot. In case still smaller brick are being used, the method of increasing the values in column "B" is easily figured out.

A few minutes' experience with the chart will make anybody an expert in its use.

A Canvas "Night-cap" For the Clay Bank

A night-cap for the clay bank has been found on many plants to be a dividend payer during the winter months, when work at that point is made unpleasant and difficult by the wet condition of the clay. The night-cap consists of nothing more or less than a large square of canvas stretched at night over that portion of the bank from which the clay is being dug during operating hours.

By the use of this canvas the clay is kept free from snow and consequently preserved in a dry condition; frost is kept out to a considerable degree with the result that the clay is easier to handle, and lastly, the floor of the pit is kept in a dry condition, obviating the necessity for the men working under very unpleasant, not to say unhealthy conditions. During the day this same piece of canvas may be stretched above the workers as a tent, and as such, serves to keep rain and snow from falling on the men and the clay.

Be Careful in Thawing Frozen Water Pipes

A source of great danger at this season of the year is the crude and ill-advised attempts at thawing frozen water pipes by the use of a burning match, torch or open flame of any description. Annually a large number of fires, which destroy an enormous amount of property, are reported which are actually due to this extremely dangerous method of thawing frozen pipes. Open flames of any description should never be employed for this purpose and to wrap the pipes with oil-soaked rags and ignite them may be considered worse than folly—it is incendiarism.

Almost invariably we find these pipes to be thru walls or partititions where there is an ascending current of air to feed and spread the flames that might very easily take life, and in cases where an actual fire is not started, the sudden local heat is sufficient to burst the pipes and flood the premises.

To thaw frozen water pipes in a safe and sane manner, involving absolutely no danger, is to wrap the frozen section with a cotton cloth and pour hot water upon it, even if the water must be obtained elsewhere, until the ice in the pipes gives way. In case the freezing is so severe that it does not respond to this treatment, a plumber should be summoned and in no case should the alternative of the open flame be employed at the risk of the loss of the plant and other property by fire.

Safe-guarding the Storage of Soft Coal

Every year a number of fires are reported due to spontaneous combustion in piles of soft coal stored either in a coal storage building or in piles outside. Conditions prevailing during the past year have necessitated many clay products manufacturers laying in an unusually large supply of this commodity, with a consequent increase in the storage risk.

It is of vital importance, in the storage of soft coal, to give careful consideration to safe-guarding the plant against fire originating in such storage. Distinct and unavoidable hazards are incident to the storage of this material and as safe-guards which might profitably be observed, the following points are offered:

1—Storage should be kept well away from the main buildings of the plant and in no case piled up against a frame building.

2—If outside space will permit, the pile should be made low (not higher than twelve feet) and of a large area, rather than of a small area and piled higher.

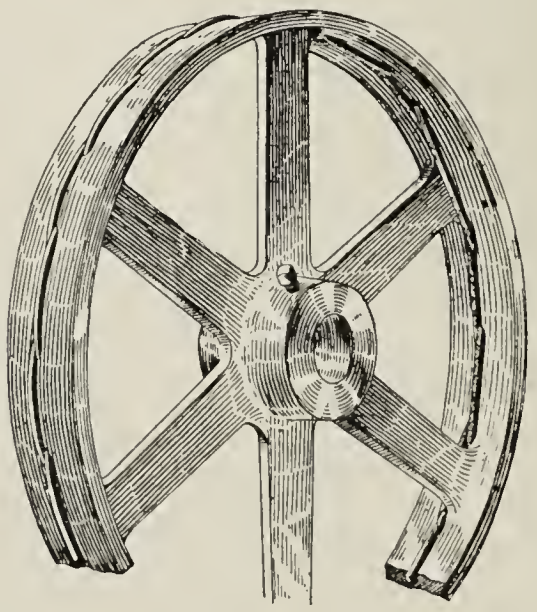
3—If wet coal is received it should be dumped around the edges of the pile, or in some location where the air can get to it freely and where large quantities of coal cannot be packed on top of it.

4—If large amounts are stored, it is a good plan to insert iron pipes, two or three inches in diameter, into the piles as they are built up. The lower ends of these pipes should be at different heights from the ground thruout the piles, probably one three-inch pipe to every four hundred square feet of surface would be ample. This arrangement allows air to circulate freely thru the coal and is a great aid in preventing spontaneous combustion.

An additional safe-guard, in connection with the use of these pipes, is to have them perforated to facilitate the admission of the air into the coal pile. Also, it is a good plan to lower a thermometer occasionally down one of them and take a reading of the temperature of the interior of the coal pile.

An Improvised Crown on a Flat Pulley

This simple and effective method was devised for keeping a high-speed belt on a large-diameter iron split pulley driven from a motor. Owing to both pulleys being flat, considerable difficulty was experienced in keeping the belt in the center of the pulleys. In the large pulley one-half inch holes were drilled between each pair of spokes and in the center of the face of the pulley. Two belt laces were then threaded on



Threading Belt Laces on Alternate Sides of the Rim of a Large Diameter, Iron-split Pulley to Keep a High-Speed Belt from Slipping

alternate sides of the rim, forming a false crown, as shown in the accompanying illustration. Several methods were tried before this, but without success. I do not remember seeing this arrangement before, but consider it may be a useful kink for anyone who has a similar difficulty—*Arthur Bingham in "Power."*

QUESTIONS *and* ANSWERS

The Best Authorities in Every Clayworking Branch are Called Into Consultation—Their Advice is Free to You, Thru These Columns

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held in confidence, and no letters will be forwarded them without first being scrutinized.

Does Cost System Provide for Loss on Yard?

807. *Pennsylvania—I am wondering if you have taken into consideration in the cost system which you are publishing in "Brick and Clay Record," loss and breakage in the stock piles before the ware is sold. This breakage would, of course, materially affect the net production of first class ware at any plant and would make a considerable difference in the cost of that ware.*

We have included this feature in the uniform cost system that is appearing in this magazine in installments from issue to issue. Table No. 30 (which is yet to appear) is the production sheet for loading from stock piles. Each day, according to our system, we keep a record of the amount handled and of the good ware. We firmly believe in a perpetual inventory, but did not include it in our cost system because we feared that it would make things too complicated.

On lines No. 32 to No. 36 of table No. 30, we arrive at the same result as would be achieved by a perpetual inventory. The loss, breakage or culls, however, are given a value as far as possible. The percentage of loss in units is posted to table No. 19, and on line No. 29 of table No. 19, we arrive at the value of the loss in dollars and cents.

This system is the only one we know of where the value of culls is kept. Most systems figure a cull as a total loss. Paving-brick, sewer-pipe and face-brick plants do quite a business in these seconds or culls.

* * *

Dry-pan Has Excessive Power Consumption

805. *Illinois—How much power should an 8 ft. 6 in. dry-pan take making about twelve ton per hour of twelve-mesh fine fire-clay? Most manufacturers of dry-pans claim that it takes only about thirty-five horsepower to operate same, but we find that the load frequently runs up to seventy-five or eighty horsepower during periods when the clay is being fed heavily. In fact, our average load will run above sixty horsepower, according to a steam indicator. Is this excessive?*

The amount of power consumed by your pan is certainly excessive. Such a pan as you mention should not need more than thirty-five horsepower after it is started and is grinding steadily. It may take an extra hard pull to start it or to break up an excessively large charge of clay, but this should not average sixty horsepower.

Perhaps the pan is out of order; gears not meshing perfectly; clutch slipping; bearings dry; the two shafts may be out of line, rubbing hard on the bearings, or the pan rim may be rubbing.

A very probable cause for this excessive consumption of power is that the scrapers and arms under the screens are worn down. Here the clay becomes packed hard under the arms, the screened clay falls thru and must be dragged and scraped around to the elevator boot in a restricted space, and it has a tendency to pack under the scrapers and arms. This, of course, sets up a friction that will consume half the horsepower required to pull the loaded pan.

If this information does not answer your question, we would suggest that you write the manufacturer who made the pan which you are using at your plant and concerning which you write in your letter above, telling him of your difficulty and asking him to show you the remedy.

* * *

Has Trouble With Acid Stoneware "Sweating"

806. *California—I have read the note at the top of your "Questions and Answers" department which states that a two-cent stamp "may improve your ware" by taking advantage of that department. With this end in view, I would like your advice upon the following problem:*

We are making stoneware for acid plants. Under separate cover, we are sending you a sample of our body and glaze We find that receivers made of this ware "sweat" slightly (small beads of acid appear upon the surface) at from one to two weeks after installation in a nitric acid plant. The "sweating" is due to imperfections in the salt glaze, small beads of acid coming thru pinholes in the glaze. Sometimes there are places on a receiver where no acid "sweats" thru, showing that the glaze at that point has no pinholes in it. We would like to know how to salt glaze these acid fittings so that there would be no possibility of acid "sweating" thru the glaze. We do not like to change the body for the reason that it stands the alternate heating and cooling conditions.

Our body is composed of three different kinds of clay, with some feldspar added. It is burned in sewer-pipe kilns that reach a temperature of from 2,100 to 2,150 degrees by pyrometric readings. Our sewer-pipe is slow to take the glaze, consequently we have to use a good deal of salt. Acid ware is generally burned in the top of the kiln, and therefore, gets a heavy glaze, generally heavier than that on the sample which is sent you. We cannot change either the amount of heat or the amount of salt we are using, for the reason that the sewer-pipe in the kilns is worth more than the acid ware. Our sewer-pipe mixture contains considerable free iron, and if the kiln atmosphere is not right, we get some pimpled pipe. For that reason we do not like to experiment with different kiln atmospheres, as it might entail considerable loss in the pipe.

From the foregoing facts, we hope that you will be able to give us some information that we can use to good advantage. We are trying to solve this problem by using different clay slips on our ware. As yet, we have not arrived at a

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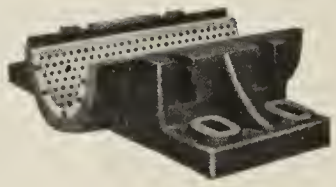
Refer to the back cover of the last (Jan. 2, '17) issue of Brick and Clay Record

Note a complete description of the

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—*The Little News.*

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satisfactory solution. Perhaps you might be able to suggest a slip of standard materials that would answer.

In order to make a thoroly high-grade, acid-proof stoneware, it is necessary to make a body that is in itself impervious to the acid, in the opinion of Prof. Homer F. Staley, Department of Ceramics, Iowa State College, Ames. It is hopeless to attempt to use a porous body for acid containers and then render it impervious to acid by covering with a solid glaze or any other sort of a glaze. There will always be pinholes or slight crevices that will allow the acid to seep thru. It seems to us that you should use a dense body corresponding in structure to that of good stoneware, rather than a sewer-pipe mixture. Such a body will stand the heat changes that acid proof fittings generally have to meet.

Concerning the sample of ware which you set us, beg to advise that an absorption test has been made, and it has been found that the piece has an absorption of 2.4 per cent., the boiling water method of absorption determination being used. For ware in which acid is to be stored, the body should be absolutely non-absorbent. A totally non-absorbent body would stand temperature changes as well as one that has an absorption of 2.4 per cent. Therefore, if it is possible for you to make a non-absorbent body from your clay, it would seem that this would be the logical thing to do.

Wants to Know Proper Size for Repress Die

808. *Iowa—We are thinking of putting on a repress machine. We make a side-cut brick measuring* 9¾x4$\frac{1}{16}$x2½ *in. What size die should we have for our repress?*

In the first place, this depends upon the size of finished brick desired. Repressed brick are usually made in sizes somewhat smaller than wire-cut, and therefore, do not know whether or not you are going to maintain exactly the same size as your present wire-cut brick or will make a somewhat smaller product.

With the information which you have given us, it is almost impossible for us to tell you just what size die should be used, even if you were to tell us the size of the finished brick desired, owing to the fact that we would have to know just how your clay is running. By this we mean whether you are tempering it very soft, medium or stiff. Repressing a soft clay would involve quite a shrinkage in the product, which there would be very little change in size in one where the clay was being put thru pretty stiff. As has been mentioned, this information would be very essential in determining the size of die you would require as it would probably vary from just slightly larger than the finished product to a size considerably larger.

There is another factor which enters into this problem and which would have to be taken into consideration before specifying the size die that will fit your needs. It is the shrinkage that takes place in your clay in the burning. If your material is of such a nature that it shrinks considerably, this would make quite a difference in the size of die required. On the other hand, a clay in which the shrinkage is small, would be a much less troublesome factor.

Our suggestion is that you take this matter up with the concern from which you contemplate buying your equipment, giving them all of the details in the case and asking their opinion. It may be possible that it would send a man out to your plant to look the situation over and give you just the information you are seeking.



The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

COLD WEATHER in practically all parts of the country is, at last, making it possible for manufacturers of burned clay products used in the building industry to enjoy a slight respite from the continued pressure that has been felt since the dawn of 1916's memorable building season. As is usual at this time of the year, orders are not so numerous, and building operations not already under way, are being held over until the warm spring weather makes possible their more rapid completion. However, the opportunity for giving some much needed attention to the improvement of the plant that could not be undertaken earlier because of the heavy demand, is welcomed by burned clay products manufacturers.

Practically without exception, the leading clay plants have enjoyed the most prosperous year of their history. Many, tho hampered by labor scarcity and wage controversies, as well as by car shortages and freight embargoes, have vastly increased their production, erected new additions, and in other ways, prepared for a full realization of the activity 1916 has already delivered and that 1917 is thought to hold.

BRICK PRODUCTION BOOSTED IN CALIFORNIA

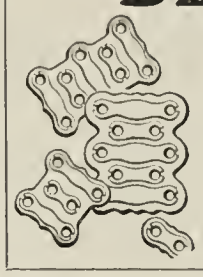
The leading brick manufacturers in the vicinity of San Francisco estimate that the production of common-brick increased at least ten per cent. during 1916, and that face-brick shows a proportionate increase. Taking into consideration the dock strike which held up building for about six weeks at this point, this record indicates a most healthy condition. The outlook for spring building is exceedingly encouraging. Brick manufacturing plants of California have, on the other hand, a capacity sufficient for about twice the demand that is now being made upon them, so "the more the merrier" in this part of the map for the coming year.

Cities thruout the West report a large increase in the amount of building done during 1916 over that accomplished during the preceding year, Omaha having experienced a very favorable year, considering conditions, while Minneapolis tacked up a figure of $23,000,000 as representing the value of its construction work during that period—$6,000,000 in excess of its 1915 mark. Similarly, St. Louis, reflecting conditions generally thruout its section, recorded an increase of $3,500,000 in the value of its 1916 building over that of the preceding year.

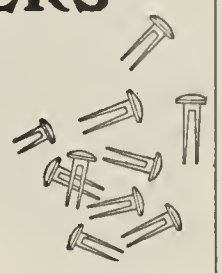
CHICAGO SLUMPS—CLEVELAND SETS NEW RECORD

Altho a temporary lull is causing the mercury in the building barometer to take a downward plunge at Chicago, due to a similar decline on the part of the ther-

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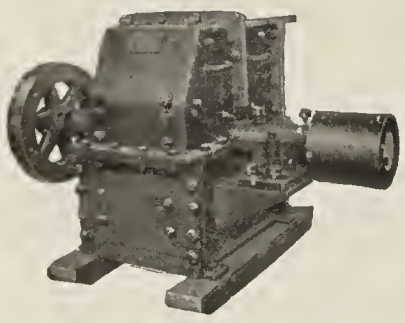
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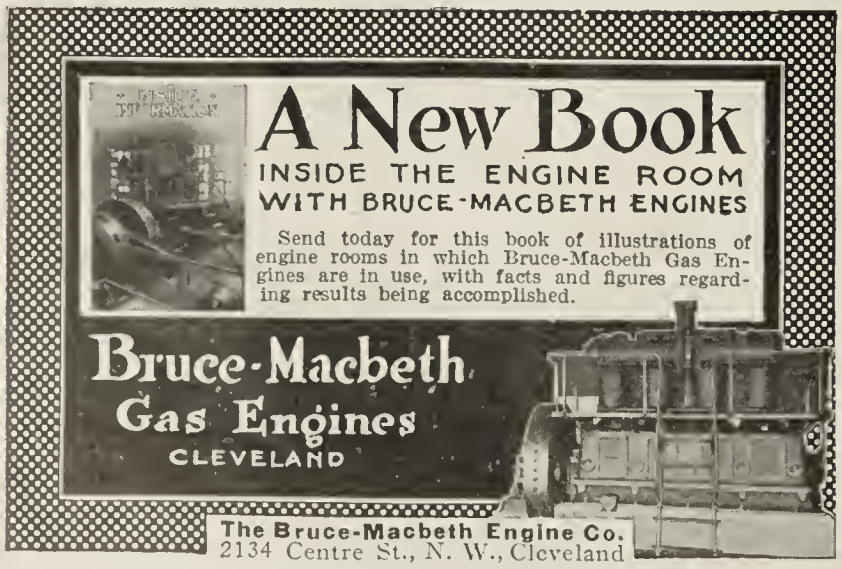
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mometer's registering liquid, conditions are not termed poor, and the promise of much work to develop in the spring is at least encouraging. In Cleveland, the year 1916 was the most active twelve month period in the history of the city in real estate and building, the year closing with building operations valued at over $33,000,000, exceeding the 1915 mark by more than half a million. This is considered very good, because the first half of the year showed a deficit of more than $4,000,000.

Brick, tile and other clay products interests at Louisville, Ky., are found at the start of the new year resting on their oars. The demand for the coming season is hardly making itself felt, altho there is a tendency toward advance purchases. Freight embargoes are causing the trade at this point unlimited trouble since they have virtually shut them out of the territory north of Louisville. As reported in preceding issues, the coal shortage is another nemesis that this district is compelled to contend with. In spite of the unfavorable conditions which prevailed for the past fifteen months, however, building operations have shown a decided gain.

COLUMBUS ENJOYS GREATEST YEAR

According to the report of the Columbus (Ohio) building department for 1916, that year was the most prosperous in the history of the city. During this period the department issued 3,141 permits having a value of $7,194,240, as compared with 2,836 permits with a value of $4,928,425 in 1915. A healthy increase was also made in the number of December permits issued during 1916 over those of the same period in 1915. Prospects are bright at this point for the coming year.

The Pittsburgh territory shares the great national building activity of the year just closed, the value of the construction work done during this period being far and away ahead of that of any previous year. During 1916, the total contracts awarded reached $177,047,000, as against $150,395,000 in 1913, which year set the previous high-water mark, and $118,519,000 in 1915. The vast increase shown in last year's building can be attributed to the high cost of building materials. It is doubtful if there were any more buildings erected than in the preceding year. A large increase over the record set by 1916 is expected to be realized by the enormous amount of building held in store by 1917. Not so fortunate, however, is the city of Philadelphia, which, altho sharing in the annual increase made by other cities, is at present suffering from a strike of carpenters which is holding back an immense amount of building.

DEMAND BRISK IN EASTERN SECTION

The demand for common-brick in the New York market continues light, but brisk in the metropolitan districts of Connecticut, Long Island and New Jersey. The year opened with Hudson river commons the only basic commodity that did not show a shift upward in price. Wholesale quotations at the dock are still hovering between the $9.00 and $9.50 mark, with most of the sales being made at $9.25. A fair idea of the strength of the market, despite the continued bad weather, is gained from the fact that Springfield, Mass., is paying $10 a thousand for brick in manufacturers' sheds. Also, for the first time in ten years, Hudson river common-brick have been shipped to New Haven, Conn., to relieve the heavy pres-

sure in that section. Still further evidences of the demand for brick was shown in the effort to bring a tow from Newburg that would require four days in transit. Metropolitan dealers are sure that the price of brick is going to ten dollars in the near future. Even now, Raritans sell for more than that in certain parts of New Jersey.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

V. S. Oviatt, formerly with the Cleveland (Ohio) Brick Sales Company, has been appointed manager of the brick department of the Queisser-Bliss Company, that city.

A. A. Yegge, formerly connected with the Boone (Iowa) Clay Works Company, has recently accepted the position of manager of the West Concord (Minn.) Brick and Tile Company.

Captain R. L. Queisser of the Queisser-Bliss Company, Cleveland, Ohio, and member of the machine gun company, Ohio National Guard, is back from the Mexican border on a month's furlough.

Charles L. Kelly, for many years a brick manufacturer of Chatham, N. J., died at his home in that city on January 1st. Mr. Kelly was seventy-eight years old and was born in Chatham.

Fred L. Dickey, general manager of the Dickey Clay Company, Kansas City, Mo., was recently elected president of the chamber of commerce of that city, following the resignation of its former president, caused by ill health.

E. C. Howard of the Claycraft Brick Company, Columbus, who is making an extended business trip to southern points, stopped off in Cincinnati to call on the trade and, incidentally, to attend the annual dinner of the Cincinnati Brick Club. The Claycraft company has always had a large southern business, and Mr. Howard indicated his intention of pushing things even harder in that section, which offers a rich field for the sale of brick on account of its present prosperity and rapid development.

George Andrew Williams, who for some time has been assistant professor of ceramics at Rutger College, New Brunswick, N. J., has resigned his position at the college and is now employed as consulting ceramist and superintendent of the Enfield (Pa.) Art Pottery and Tile Company. Mr. Williams' many friends in the Raritan river section, altho sorry to lose such a valuable authority in the clay products industry, are pleased at his rapid advancement. The former Rutgers ceramist is a graduate of Alfred University and was a valuable member of the staff, according to statements made at the institution.

James T. Howington, general manager of the Coral Ridge Clay Products Company of Louisville, has recently been elected to membership in the Louisville Rotary Club, which is a particularly live aggregation of business men and which is continually keeping in the

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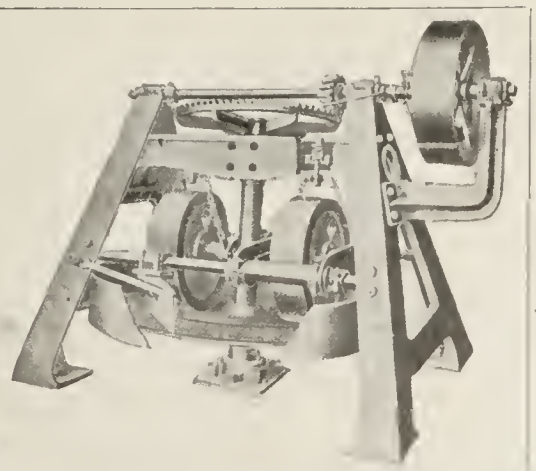
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ORRVILLE, OHIO

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YOUNGSTOWN!

A good car, a good performance is never forgotten it can't be. Youngstown cars stand up under the strain of derailment, dipper-hammering, dumping, for years and years.

The Youngstown Steel Car Co.
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ASK FOR INFORMATION TODAY

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SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

Produces absolutely uniform heat and reduces fuel consumption. Keeps the heat where it is productive. The reduction in rejected pieces will pay for the insulation in the first month of operation.

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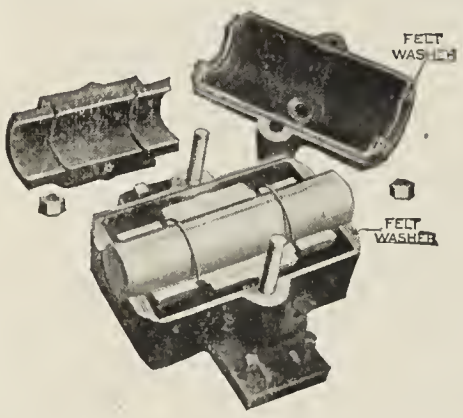
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THE DELAWARE CLAY MFG. CO.
Chas. W. Denison. V. P.

Prevents slipping, keeps belts clean, pliable and preserves them

Why not let us ship you on appoval one 50 pound trial can? See for yourself just what "Sero" will do for your belts.

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We also make "Sero" Gear and Cable coating and Manilla Rope dressing

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Friction reduced to a minimum because of Clarage Special Bearings. They are enclosed—run in oil—dust-proof and self-aligning. That's why the best brick plants use them. Ask for detail information.

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No man is sufficient unto himself—most of our learning is by precept—and we are fortunate indeed that those who have been successful have handed down their experiences for future generations to profit by. Look over our Book List on page 104 and you will no doubt find just the help you have been wanting.

limelight. Mr. Howington will make a congenial member. Business is being handled on a satisfactory scale by the Coral Ridge Company, which is shipping south, selling hollow-tile readily. The annual meeting of the company is scheduled for this month and a report of a very satisfactory year will be made to the stockholders.

Alabama

The capital stock of the Roper Straus Ferst Tile Company located at Birmingham, Ala., has been increased from $35,000 to $45,000.

California

Anton Konda, mayor of Porterville, Cal., has discovered a clay deposit on his ranch near the city and is making arrangements to have it tested. It is a vivid red and exceptionally heavy.

F. C. Pratt, president of the Pratt Building Materials Company, San Francisco, says the past year has been of great educational value in connection with the marketing of a certain patent hollow-tile carried by this concern. The prospects for a big increase in the use of this modern and desirable material are most assuring, as the results of the past week with the product have proved of splendid advertising value.

The face-brick which is being used in the construction of the Farmers and Merchants bank building on the corner of San Joaquin and Main streets, Stockton, Cal., is being furnished by the San Joaquin Brick Company. The company was awarded the contract in competition with well-known outside manufacturers. About a quarter of a million brick will be required for this job. The output of the plant is 40,000 a day, and the market for its product is increasing steadily.

C. Berg, president and manager of the Port Costa (Cal.) Brick Works, says the demand for common-brick kept up unusually late this past year by reason of favorable weather. His company produced over ten million commons during the year. On account of delayed deliveries on steel products for the additions to the San Francisco County Hospital and the new sugar refinery near that point, the Port Costa company is not delivering brick yet on these contracts. They are at present completing deliveries on several big jobs and are hauling 750,000 brick for the new Webster School in the Potrero district of San Francisco.

N. Clark and Sons, San Francisco, Cal., report quite a number of fine prospects for the coming building season. The most important contract this concern signed up recently is that for supplying architectural matt glaze terra cotta in polychrome for the new theater building being erected at Fourth and Market streets by the Market Street Realty Company. This theater will be most modern in construction and embody some of the most attractive terra cotta ornamentation ever used in the West. The building is of a modified Gothic design and is being built from the plans of Architect Alfred Henry Jacobs. The fronts on both Market and Fourth streets will be of terra cotta. The cost of the building will be a half million dollars.

Colorado

The plant of the Castle Rock (Colo.) Brick Company has been leased for a period of fifty years from the city



of Castle Rock by the Denver Press Brick Company. New machinery is to be installed and the capacity of the plant enlarged. It is understood that the lessee will operate the factory on a royalty basis.

The Golden (Colo.) Press Brick Company announces that it will immediately commence improvements and enlargements at its plant that will increase the present capacity by 125,000 brick a month. The most important of the improvements will be the building of two new kilns with a capacity of 60,000 brick each, and the erection of a large smoke stack.

Connecticut

In one locality in Connecticut, above North Haven, a new method of building brick roads has been tried. Only the wheel tracks are laid with brick. The remainder of the road is earth or macadam. The advantages of work of this sort are not altogether obvious and the construction of experimental strips is for the purpose of determining if this form possesses any economic advantages as compared with a brick pavement which covers the whole width of the road. The question of cost of construction enters into the idea and perhaps there is something in it which will develop into a scientific demonstration of the value of brick used in this way. But it must be confessed that it doesn't quite appear feasible at first glance.

District of Columbia

It is reported that the West Brothers Brick Company, another large common-brick concern in Washington, D. C., cannot accept any more orders, it is so flooded with work.

The Washington (D. C.) Brick and Terra Cotta Company, one of the largest producers of common-brick in this vicinity, has just shut down its yards, altho flooded with orders, because the company cannot procure enough coal, at any price, to operate.

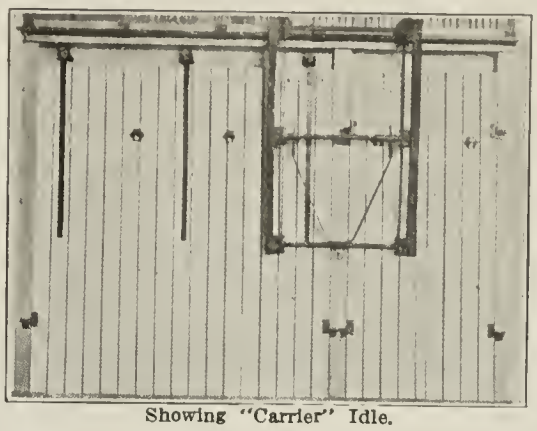
It is reported by the local office of the Hydraulic-Press Brick Company in Washington, D. C., that it has orders on hand for more than 7,000,000 face-brick, which is said to be the best showing that it has ever made. The demand for brick at this city has recently been enormous, and everyone is busy.

Some of the big orders recently secured by the Hydraulic-Press Brick Company of Washington, D. C., include an order for 950,000 red face-brick for the new Woodley Apartments, being erected by Harry Wardman of that city and to cost $5,000,000; 350,000 rough gray brick for the new $1,000,000 Hotel Washington, to be erected by Nelson and Lewin of Chicago and Washington, the architects being Carrere and Hastings of New York; 250,000 smooth light brick for the new Interstate Commerce Commission building to cost $400,000; 80,000 rough gray brick for the new addition to the Southern Railway office building, being erected at a cost of $250,000; and 500,000 smooth gray brick for another $500,000 apartment being erected by Harry Wardman.

Georgia

The Ajax Clay Works has been incorporated at Macon, Ga., with a capital stock of $100,000, to manufacture silo-tile, sewer-pipe and fire-brick.

Keep the Heat in Your Drier



Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

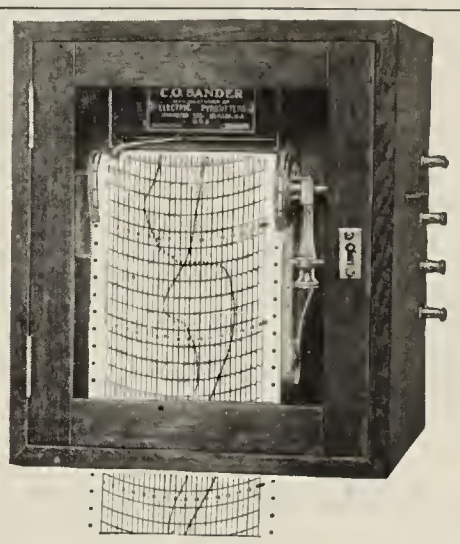
Perfected Dry Kiln Door Carrier

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Write for catalog B2 and all details.

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An Accurate Record

of the kiln's temperature—that is what you must have in order to secure an even burn. SANDER PYROMETERS guarantee accuracy.

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WE CAN SAVE you 25% of your fuel bill. No money until we do it. Don't you think this worth a stamp? Then write to the

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STEAM POWER
By C. F. Hirshfeld, M. M. E., and T. C. Ulbricht, M. E., M. M. E.

This book contains the essential theory of the subject, and is written in an understandable manner.

428 *pages, 5¼x8, 232 figures.*
Cloth, $2.00 net.

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Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

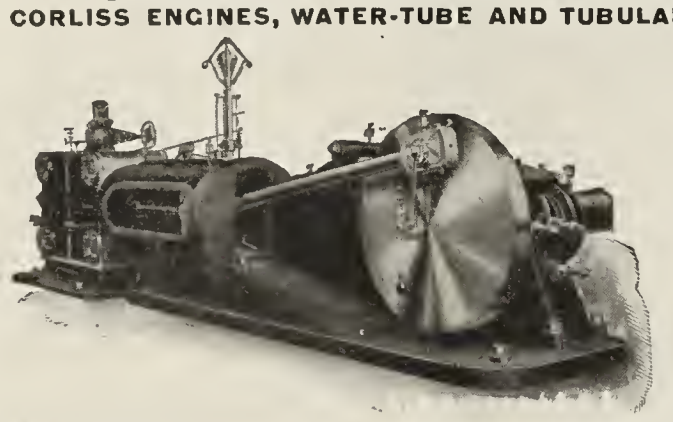


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for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

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CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 **BURLINGTON, IOWA**

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

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"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusively Manufacturers of First Quality Light Steel Rails and Accessories

BUCKEYE MEANS BEST — Offices: Steubenville, Ohio — All Sections from 12 lb. to 40 lb. per yard

BEST BUCKEYE MEANS — Mills: Newark, Ohio — Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

Illinois

An unusually active season is reported by E. M. Durland, who is operating the Johnson Brick Works at St. Elmo, Ill., for the McEwing and Thomas Clay Products Company. From present indications, writes Mr. Durland, the plant will be operated thru the winter to supply the heavy demand that is being made for its product.

It is said that a deal has been consummated for the sale of the Roodhouse Pottery Company of Jacksonville, Ill., and that the plant will be placed in operation very shortly manufacturing chinaware. Satisfactory experiments are said to have been made with the clay available and the results obtained were responsible to a large extent for the organization of a new company. W. J. Chapman is president of the concern, J. B. Thompson, vice-president, J. H. Smith, secretary-treasurer and general manager and J. B. Lessell, superintendent.

Indiana

The Mongo (Ind.) Moorish Tile Flooring Company has filed papers with the secretary of state increasing its capital stock from $25,000 to $50,000.

The clay plants at Carbon, a short distance from Brazil, Ind., which were affected by the workers' strike several months ago, have resumed operation. Many strikers have returned to work and several laborers have been "imported."

Beginning with the first of the present month, the Adams Clay Products Company of Martinsville, Ind., was reorganized and a new board of directors elected. C. C. Coleman of Indianapolis was chosen president and general manager; Dr. F. Pritchard of Indianapolis, vice-president; K. I. Nutter of Martinsville, treasurer, and his son, Park Nutter, secretary. The elder Mr. Nutter recently purchased the interest of Fred B. Adams of Indianapolis, formerly president and manager of the concern.

Members of the Clay Workers' Union, who have been on strike at Brazil, Ind., since last July, recently held a public mass meeting and decided to continue the strike. Representatives of other labor organizations pledged support. Most of the plants which have been tied up since the start of the strike have resumed operations with help obtained from the ranks of the strikers and employes from other cities. The Brazil Chamber of Commerce attempted to bring about an end to the conflict but the strikers resented the action and voted to "strike to a finish." Jerome Bogle, secretary of the local chamber of commerce, is now conducting a referendum vote of the business and professional men and many laborers to learn the sentiment of the people regarding the strike. Mr Bogle says figures obtained from the pay rolls of the ten clay plants at Brazil show that more than seventy-six per cent. of the men are back at work. President Hutson of the clay plant workers' union declares that over 800 of the original strikers are still out and insists upon a recognition of the union.

Iowa

An option on a large tract of land at Eldora, Iowa, has been obtained by Mason City investors who are said to have made a number of tests of the clay. If further tests substantiate earlier findings, a large brick and tile manufacturing plant is likely to be built.

Articles of incorporation have been filed with the secretary of state by the Adel (Iowa) Clay Products Com-



pany, placing the capitalization at $125,000. Lee S. Straight is named as president of the company and Halver R. Straight as its secretary and treasurer.

According to officials of the Algona (Iowa) Brick and Tile Works, the year 1916 was a banner one, with all indications pointing to its being exceeded by the business that 1917 promises to bring, both in drain-tile and building materials. This company recently presented its stockholders with a ten per cent. dividend and claims the distinction of having made money every year of its existence, except one.

Kansas

The plant of the Fredonia (Kan.) Press Brick Company is now making several changes in equipment. It is reported that the company is installing new kilns and boilers, and otherwise making preparations to greatly increase its capacity.

The sale of the newly constructed $200,000 paving-brick plant of the Western Shale Products Company, Fort Scott, Kan., to parties operating paving-brick plants in several states, was recently consummated. This plant, which has been completed since November 25th, had not started operations on account of the pending negotiations for its sale. The transaction involves a transfer of $80,000 of the $100,000 in stock which represents the holdings of W. E. Gunn and M. M. Bushong, former manager of the plant. The new proprietors of the company also own the big paving-brick plant at Buffalo, Kan., and several other plants in that and other states.

Kentucky

Brick and clay products concerns in Paducah, Ky., are looking forward to a favorable year, after having finished 1916 with good records. S. T. Howard, manager of the Paducah Pottery Company, stated recently that the concern increased its sales in 1916 by twenty-seven per cent. and is looking forward to a better business this year. Prospects for business in the South, where most of the output of the company is sold, are excellent. James A. Murray, secretary and treasurer of the Paducah Brick and Tile Company, held up its sales records in 1916 and is going into 1917 with better prospects. Mr. Murray is counting much on tax reform. Frank P. Hill, president of the Hill and Karnes Brick Company, is another member of the trade who hopes that tax reform will become an accomplished fact and believes that it would result in much improvement to business in Kentucky.

The P. Bannon Pipe Company, Louisville, Ky., reports business in a healthy and satisfactory condition for this time of the year, orders for future delivery being booked constantly. A. P. McDonald, salesmanager for the company, has been out on the road and his reports are the kind that the home office always like to get. The company has just disposed of some six hundred acres of its total holdings of nine hundred acres south of the city, and opposite the plant and property of the Coral Ridge Clay Products Company. The balance retained, something more than two hundred acres, according to M. J. Bannon, president of the company, is that part of the property that led the company to make the purchase originally. It lies along the railroad track and contains all the clay land, which will be held for later development. The land sold off is farming land and will be utilized for that purpose by the purchaser.

Brick are not in as keen demand at this time as they might be, according to Oscar Hillenbrand of the Hillenbrand Brick Manufacturing Company, Louisville, Ky., altho the coal business is good. The Hillenbrand plant

A Brick Plant That Is Making Money—



This plant is located in Eastern Pennsylvania—it's a "producer" and it's making good profits for the stockholders.

If that's the kind of plant you want—whether you contemplate new construction complete or partial—consult us.

We build complete plants, improved kilns and dryers, producer-gas fired kilns and dryers, and do all other clay plant engineering work.

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HOW TO ANALYZE CLAY

A Practical Work for Practical Men

An aid to beginners and full instructions for making clay analysis

64 Pages with Illustrations

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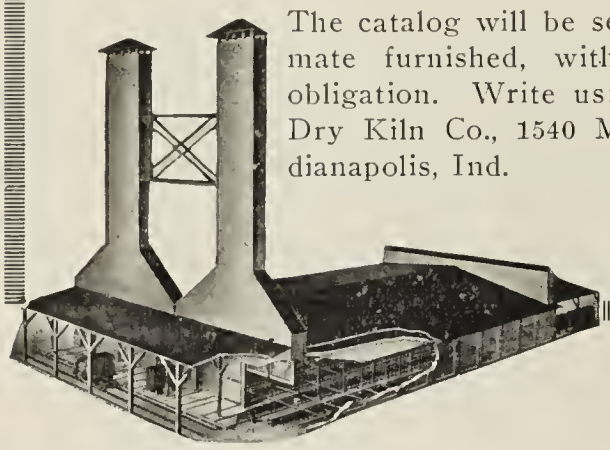
"BRICK AND CLAY RECORD"



Another Big Year for The Standard Drier

THE year 1916 saw many more progressive brick manufacturers converted to The Standard Natural Draft Steam Drying Process—the drying system of *guaranteed results.*

1917 too is starting off fine. When are we going to hear from YOU?



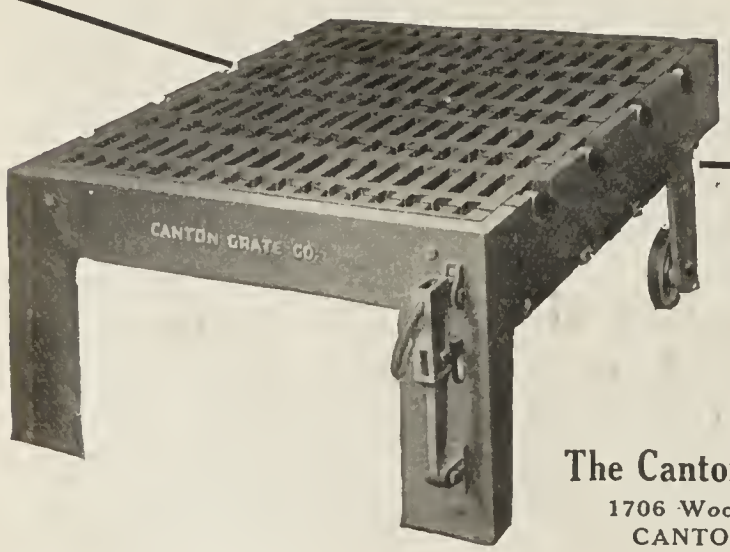
The catalog will be sent, and an estimate furnished, without charge or obligation. Write us: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Kiln Furnace Grates

With these grates it is possible to burn less fuel and to use a cheaper grade—attaining an even, uniform flow of heat.

The total of the two savings has reached over 40 per cent of the former fuel bill on one fire brick plant.

Try them on just one kiln; they will fit your furnaces. Note that the wheels in back permit easy moving from kiln to kiln.



Send for Description

The Canton Grate Co.
1706 Woodland Ave.
CANTON, OHIO

is closed down for the time being. However, the company has about a million brick on hand and is prepared to take care of orders immediately. Mr. Hillenbrand related an interesting incident which is indicative of the labor situation prevailing in the vicinity of Louisville. All of the workmen employed at the plant decamped *en masse* recently, going to Pittsburgh, where they were led by reports of the big wages being paid. This was some time ago, and it was necessary for the company to look around a little before it was able to replace the men who left with others who were competent to handle the work. These came on at increased wages and this calls attention to the fact that wages generally have been increased. Furthermore, it also suggests that higher prices will rule on brick and other products for the year just beginning, with coal and coke nearly double normal prices and other items to correspond.

Louisiana

Delatte and Lagrange, Inc. of Lake Charles, La., have leased the plant of the H. E. Buck Brick Manufacturing Company, that city. This plant, together with the two formerly operated by the new owners, will employ sixty men and will have a capacity of 10,000,000 brick a year. A. Delatte will manage the Buck plant while Adolph Lagrange will manage the other two. The Buck brick plant was established twenty-two years ago and has been operated for the past twenty years by H. E. Buck, who is reputed to have been the first successful brick manufacturer in that part of the state.

Maryland

A charter has been filed for the Consolidated Mineral Company of North East, Maryland, which has been organized to manufacture and deal in clay and other minerals, and capitalized at $2,000,000. G. K. Hack, James Russell and Edwin Russell are the incorporators of the new company.

The stockholders of the Mayer Brick and Tile Company of Frostburg, Md., held their first regular annual meeting at the company's office in the Shea building, on January 8th. The president, Henry Mayer, presented a report showing the company to be in good financial condition, and operations for the year of 1916 to have made a gratifying net profit. The present board of directors, which is composed of Messrs. Mayer, Hocking, Walter, Schreiber, and Hesse, was re-elected. The officers who had served during the past year were also re-elected for the coming twelvemonth, they being Henry Mayer, president; G. Dud Hocking, vice-president; R. A. Walter, secretary, and F. H. Schreiber, treasurer. A dividend of seven per cent. on the company's preferred stock was declared, payable on or after February 1st.

Michigan

The St. Claire (Mich.) Brick Company will use the proceeds of the sale of three thousand shares of stock to purchase and install additional machinery, designed to increase the capacity of its plant twenty million brick a year.

Preliminary tests upon a white clay found in Peninsula township, near Traverse City, Mich., by John L. Boursa, have shown it to be of a very high grade and especially adaptable to the manufacture of fire-brick. More extensive tests are to be made upon the material, and should the findings of the first tests be substantiated, the possibilities are favorable for the construction of a brickmaking plant at that point.



"There were 50,000,000 or more brick shipped into Detroit during 1916," says Ralph Spencer, president of the Dresden Brick Company, but more recently associated with the organization of the Rapid Service Face Brick Company. "We have teams enough to haul the brick away to the unfinished jobs, but we cannot secure team track space to get at the loaded cars."

The freight congestion and railroad embargoes have raised havoc with the building conditions in Detroit, Mich., during the past forty days, especially with regard to the shipment of face-brick from Ohio. These same obstructions having affected other building materials, a number of structures have necessarily been held up.

Minnesota

The brick manufacturing plant located at Pengilley township near Nashwauk, Minn., is again in operation after being closed for about a year. According to officials of the company, a heavy demand exists for the product of the plant.

Missouri

The Kansas City (Mo.) office of the Hydraulic-Press Brick Company, with offices at 403 Rialto building, has placed a new salesman on the road. H. C. Hayman is the new traveler and he will cover the territory immediately adjacent to Kansas City.

A new brick manufacturing and sales company has been formed at Kansas City, Mo., which will soon open offices and begin business as the Kansas City Brick Company. It is generally known that the company will begin construction of a plant at Vale, Mo., within a short time, but detailed information has not as yet been made public.

The Reliance Brick Company at Kansas City has announced that it has recently taken on the line of Fiske and Company, Inc. The outlook for the business with this new line seems to be very good, according to the Reliance company, as there has been a marked demand for the product of the Fiske Company, in Kansas City.

The Hydraulic-Press Brick Company's face-brick plant at Kansas City, known as the Diamond C. Station, is now closed for repairs. The plant will begin operations about February 1st, and according to the Kansas City salesmanager, H. H. Crowell, will start with several big orders on hand to be filled, which will keep it busy for some time.

The Reliance Brick Company of Kansas City, which carries the line of the Kansas Buff Brick Company, whose plant is at Buffville, has announced an increase in price of one dollar per thousand, following the increasing of the price by the factory. The Reliance Brick Company, of which F. C. La Fountain is the manager, also handles the products of the Denison Clay Company.

Montana

The Baker (Mont.) Brick Company is the name of a new corporation which will probably have its recently constructed plant in active operation by spring. The promoters of the enterprise, it is stated, have conducted tests upon the clay and have found it to be abundant and of good quality, especially adaptable to the manufacture of brick, tile, sewer-pipe and paving-brick. Natural gas will be utilized for burning the product, which is expected to effect a material reduction in the burning costs.

Nebraska

Common-brick manufacturers in Omaha enjoyed an unusually good business during 1916. The three such plants

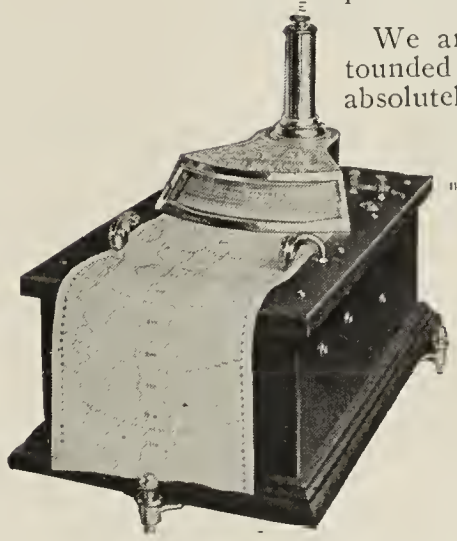
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Price Pyrometers

Get your outfit installed, tested and complete, ready for the opening rush in the spring.

Then when burning starts in earnest you will have a reliable pyrometer to help your burner save coal and time.

It would be a difficult matter for us to name a single Price Pyrometer installation that has not accomplished all tnree of these possibilities. Saved coal, saved time and produced better ware.

We are sure that you will be astounded at our low quotations for absolutely guaranteed instruments.



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You won't have to worry about competition if you treat your clay with

R. H. Precipitated
Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
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BEIGHLEE

The pyrometer that contains features truly distinctive, and as near errorless as human ingenuity can make it.

It has an eighteen inch dial, it has a compensating device and a high internal resistance.

It surely is equipped with a "conscience," for it tells the truth always.



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Herman A. Holz, Hudson Terminal Bldg., New York. Representative in New England States.

In Your Own Home

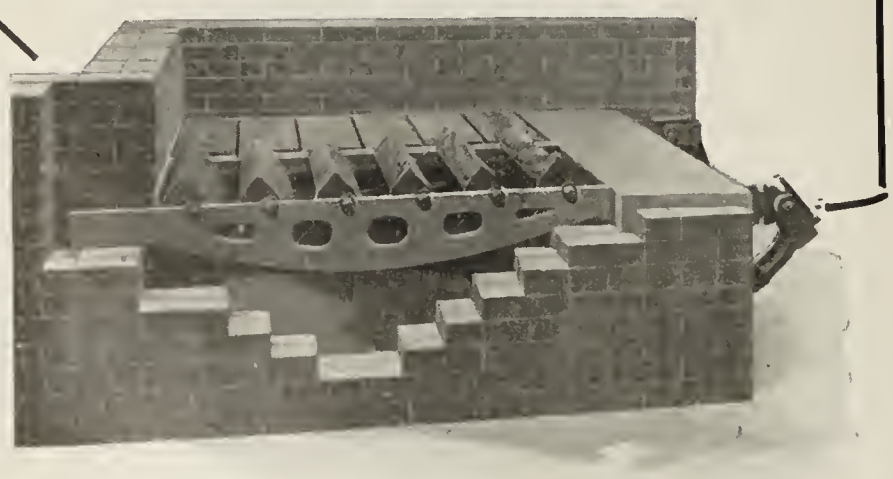
In Your Own Furnace

You Use Shaking Grates

You **wouldn't go back** to the straight grate, the dead bottom furnaces, because it would be hard to keep the fire going good, and impossible to keep it clean and free from clinker.

Will you continue to use in your power plant the type of grates that you have discarded in your home? Why not make us prove that Cyclone Grate Bars will save you money?

Cyclone Grate-Bar Company
Buffalo, N. Y.



operating at this point have worked to capacity thruout the year and all report a shortage of stock for the spring trade. During the past year, the Smith Brothers Brick Company manufactured more than eighteen million brick, while the Omaha Clay Company and the Standard Brick Company each produced about six million brick. An excellent business is looked forward to in 1917.

New Jersey

A tract of land at Belleville, near Newark, N. J., consisting of thirty-eight city lots and bounded by the Newark-Paterson branch of the Erie Railroad, Little, Cortlandt, and Stevens streets, was recently purchased by the National Pottery Company of Newark. Plans are being prepared for a model pottery plant, to be constructed at a cost of about $20,000.

Friends of former Mayor W. C. Black, of Rutherford, N. J., are congratulating him upon securing for the Hay Walker Brick Company, of which he is secretary, the order for 2,000,000 face-brick to be used in the construction of the new Terminal Hotel to be erected in New York City at Seventh avenue and West Thirty-fourth street, by the Pennsylvania Railroad. This is said to be the largest single face-brick contract ever placed.

Capitalists connected with the Paterson (N. J.) Chamber of Commerce have formed a company and are erecting what is known as the first unit of the Paterson Industrial Company's manufacturing buildings. N. H. Sloan has the contract to supply the 1,000,000 face-brick needed in the first unit. The Bloomsburg Brick Company of Pennsylvania will manufacture the face-brick. Mr. Sloan also secured the contract for 250,000 common-brick to be made by the Garner Brick works of Haverstraw, New York.

Cliffwood, N. J., is a brick center of growing importance. At the head of that industry in the town is the Cliffwood Brick Company, which employs, when running to capacity, six hundred persons. One might repeat the same old story about shortage of labor concerning this company, but that is needless. The Oschwald Brick Company in the same city employs one hundred persons and the Lenox Brick Company a varying number. All three of these are enterprising concerns and are quick to take advantage of the opportunity presented by location in a county which is developing very fast. The brick they make are good and the outlook for increased business is promising.

Egg Harbor, N. J., is not a very large community, but it is growing and it furnishes support to one brick making concern—the Egg Harbor Brick Manufacturing Company. It is small, and some years its output has been only what was required for home consumption. Yet its opportunities to extend the business are good, since it is in a county where much residence building is in progress. At the shore resorts people are beginning to think of houses which are to a degree fireproof. Beside, brick bungalows and cottages are but little more expensive in first cost than the more flimsy wooden structures. It is possible, therefore, to build up a good trade in brick for that purpose.

North Dakota

Preparatory to letting a contract for the construction of a $200,000 sewer system at Fargo, N. D., that city is sending its engineer, F. L. Andrews, and commissioner of water and sewers, R. B. Blakemore, to investigate a



two-piece segmental sewer block manufactured by the Evans and Howard Fire Brick Company at St. Louis, Mo. Segmental block will be specified for use at Fargo for the first time in the new sewer contracts which are to be let this coming season.

Ohio

The Hinde Brick and Tile Company at Sandusky, Ohio, which has been inactive for a period of two months, due to the acute coal situation, resumed operations on January 2nd. Enough fuel is now at hand to insure operation during the rest of the winter.

Bids for the improvement of about twenty miles of country highway with brick pavement have been advertised for by the commissioners of Columbiana county, Ohio. The money is ready for the work, and the improvement is close to several plants manufacturing paving-brick.

The Franklin Brothers Company of Akron, Ohio, has been established for the purpose of dealing in a general line of builders' supplies, including face-brick and building tile. The capital stock of the company is $50,000. Charles A., Charles E. and Walter A. Franklin are interested.

The old city hall in Cleveland, Ohio, is being razed, the site to be used for a new public library building. It is estimated that 3,000,000 second-hand brick will be available as a result of this project. Already most of the brick has been taken up by apartment house builders. The material is selling for three dollars a thousand.

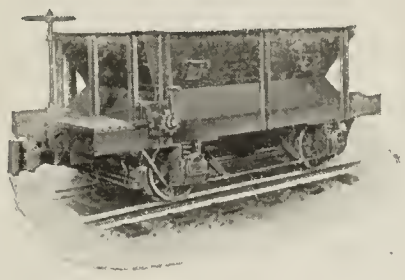
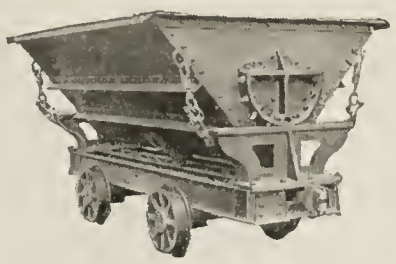
Thru a deal consummated during the latter part of December, A. Robinson and Son took over the interest of C. L. Graves in the Robinson-Graves Sewer Pipe Company located at Uhrichsville, Ohio. Mr. Robinson and Mr. Graves established the plant in 1903. As yet Mr. Graves' plans for the future have not been announced.

The Claycraft Brick Company of Columbus, Ohio, reports a good demand for its product, despite the coming of colder weather. The car shortage is still bad, which delays shipments to a large extent. Prospects for spring business are unusually good and a large volume of trade is anticipated early in the year.

In process of reorganization at Lima, Ohio, is a company which formerly was engaged in the manufacture of common-brick and tile, and which is to be placed in operation again as a producer of partition tile. Cincinnati interests are to some extent interested, and it is reported that a brick man who is well known in the Cincinnati trade will be with the company.

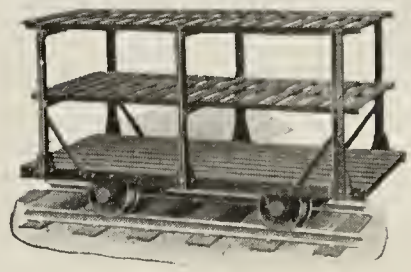
The State brick plant at Junction City, Ohio, is to furnish all of the brick required in the construction of the new penitentiary building at London, Ohio, according to an announcement made by the commission in charge of the building. The Junction City plant, which is operated entirely by prison labor, has of late been confining its production to brick for State purposes, including roads and buildings, in order to keep the product from coming into commercial competition with that of outside manufacturers.

Some sensational orders, for size, have been placed with Cleveland (Ohio) firms in the last fortnight. Among the most significant of these are 60,000 pieces of hollow-tile for the Holy Rosary Church, Dayton; 40,000 pieces of tile for the Mutual Bank of Dayton; 100,000 face-brick for the National Tube Company's factory and office building, supplied by the Cleveland Builder's Supply Company, and 400,000 Old English brick for the new Hotel Winton, supplied by the Hydraulic-Press Brick Company.

CARS OF EVERY DESCRIPTION

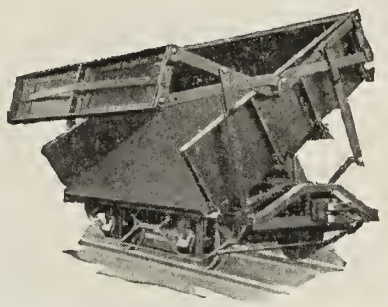
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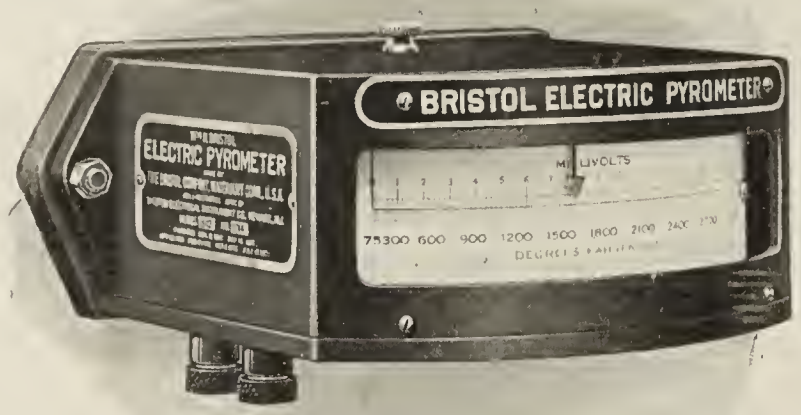
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Ample private baths with both fresh and sea water, with showers on every floor—surf bathing from hotel.

Unusually extensive lounges, porches and public rooms.

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are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

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Oil
Intermittent loads
Sudden loads
Overloads
Mud
It is the best belt made for
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HETTRICK MFG. CO.
TOLEDO, OHIO



Brick and sewer-pipe manufacturers in the upper part of the Ohio valley, and especially those in the Toronto, Empire and Irondale districts, have been put to much inconvenience on account of the freight embargo. Hundreds of cars of brick and sewer-pipe are awaiting shipment, but the manufacturers have been unable to secure a sufficient supply of cars. A heavy shortage in rolling stock during the next few months is predicted by a number of the manufacturers.

James E. McNally, general manager of the J. J. Snider Lumber Company, was elected president of the Columbus (Ohio) Builders' and Traders' Exchange for 1917, at its annual meeting held in the exchange rooms on January 1st. William F. Kern was elected first vice-president, E. A. Prentice, second vice-president, and R. L. Wirtz, Will D. Cherry, J. G. Brigel, George F. Franklenberg and David Krause, members of the board of directors. The membership of the exchange consists of contractors and material dealers.

The annual meeting of the stockholders of the Ironclay Brick Company of Columbus, was held at its offices in the Ruggery building on January 8th. The year as a whole was a good one and prospects for the future are bright, according to J. M. Adams, secretary and general manager. Officers were re-elected as follows: W. D. Brickell, president and treasurer; J. M. Adams, secretary and general manager. These officers, with C. J. Meare, A. H. Johnson and A. R. Raff, constitute the board of directors.

Fred Lazarus, Jr., president of the Columbus Exposition Company, which has been organized to erect a large exposition building and interurban station at Town and Rich streets, Columbus, positively announces that the work of construction will be started by April 1st at the latest. Altho the original plans called for a smaller structure, the acquisition of more ground brought about a change, and it is now planned to construct a building 260 by 187½ feet. An assembly hall with a seating capacity of 11,000 is to be a feature of the new structure.

The annual meeting of the stockholders of the Metropolitan Brick Company of Canton, Ohio, which was to have been held January 3d, has been postponed until February 3d. The postponement was made to give stockholders more time to consider action to be taken at the meeting. The most important matter to come up for consideration is an increase in the authorized capital of the company from $2,000,000 to $7,500,000. Under the proposed increase the common stock would be $5,000,000 and the preferred stock, $2,500,000.

New directors for the supply dealers' board of the Society Advocating Fire Elimination, appointed at the annual meeting of that organization at Hotel Hollenden, Cleveland, are announced by Ralph P. Stoddard, secretary. They are: W. A. Fay, Cuyahoga Builders Supply Company; J. P. Jerka, Lake Erie Builders Supply Company; John Scheuer, Lakewood, Masons Supply Company; R. B. Taylor, Ideal Cement Products Company; H. Schmidt, Gates Elevator Company; W. T. Rossiter, Cleveland Builders Supply Company; A. A. Kemper, Sheets Elevator Company, and Robert C. Mitchell, Barkwill-Farr Company.

Distribution of Christmas presents and bonuses by brick and allied products manufacturers to their employes, has been taking place in Cleveland during the past two weeks. A ten



per cent. increase in wages has been announced by the Barkwill-Farr Company. This goes to employes at all plants. Office employes received their presents in stock at the time of consolidation of the four leading brick concerns of the city. According to its usual custom, the Cleveland Builders Supply Company distributes a present in the form of a ten per cent. dividend of stock set aside, which amounts to practically a ten per cent. bonus on a year's salary.

Some very constructive action has recently been taken by H. S. Gaines, assistant to the president of the Ohio Builders' Supply Association, encouraging the formation of thirty-two district associations thruout the state, each to have a chairman and secretary who will report at intervals to the headquarters in Columbus. It is apparent that the possibilities for concerted and very effective work, thru such a program, are unlimited. The state association is at present laying plans for its annual convention to take place at Columbus on January 23rd, 24th and 25th, a feature of which will be a banquet to be held at the Southern hotel, where the association will convene.

H. F. White, manager of the brick department of the Hocking Valley Products Company, Columbus, Ohio, says trade is slow but not any more so than usual for this time of the year. Brick factories and salesmen are looking forward to an active trade as soon as the weather opens. Recent advances in prices are all maintained and there is every indication of still higher levels. The car situation, according to Mr. White, is improved and shipments are a little more rapid. This situation is attributed to the recent ruling of the Interstate Commerce Commission, requiring that all cars be routed towards home.

The results of persistent and intelligent selling work in Cincinnati during 1916, in spite of a smaller volume of building, resulted in an increase of the brick business transacted of about thirty per cent. over the preceding year, with its larger volume of building. The increase is attributed to no other factor than the vigorous selling work which has been conducted by brick men on behalf of their product, and the winning of home-builders over to the cause of brick and tile, as against flimsy and perishable structures of frame. Residence building has been large during the past year, and gratifying instances of the increasing use of clay products in small houses can be seen everywhere in the residence suburbs where houses are under construction.

The gas shortage which occurred in Cincinnati during the latter part of December, reaching an acute stage and necessitating the shutting off of large industrial consumers, affected the Rookwood Pottery, among other large concerns, and several of the brick manufacturing plants as well. These have found the use of gas for some purposes economical, at the low rates offered for large consumption, but have assumed a large risk since the rates are contingent on the right of the gas company to shut off industrial users in favor of domestic consumers in severe weather. The result was that many plants had to shut down or resort to coal.

President Shorey of the Shorey-Willis Supply Company, Cincinnati, Ohio, stated recently that, rather to his surprise, December proved the busiest month the company has ever had, some nice contracts coming its way and keeping things moving for 1916 right up to the day before Christmas. The company's quarters in the Union Bank building are among the most attractive in the city, and are still undergoing improvements, especially as to displays of brick. Mr. Shorey expressed the opinion that the higher prices prevailing for brick will not

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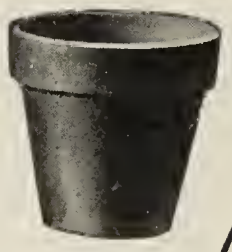
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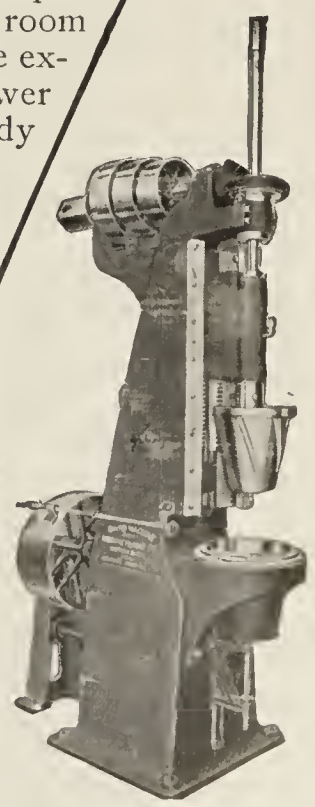


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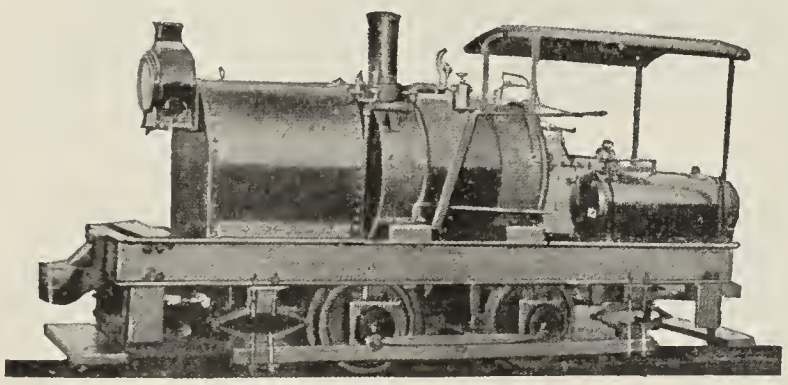


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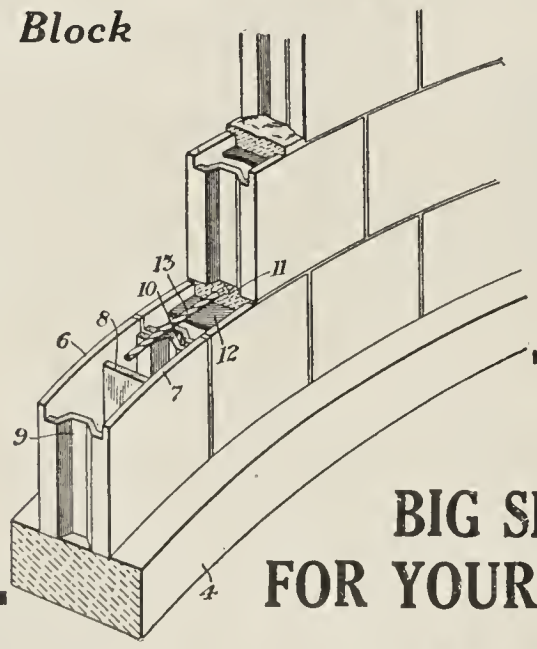


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affect the Cincinnati market to any great extent, on account of the abundance of money available for building and the real need for more buildings of all sorts, residence, mercantile and industrial. He expects 1917, therefore, to be one of the most prosperous years the Cincinnati trade has ever had.

It is reported that the Shawnee district of Ohio, one of the most important face-brick producing sections in the state, is threatened with a strike, present indications being that the men must reduce their demands if they desire serious consideration at the hands of the employers. They are demanding increases ranging at the various plants from twenty to ninety per cent. over present levels, and the maximum which the employers are willing to grant at this time is ten per cent., which has been offered. It is pointed out that increases were made in several instances last year, raising wages materially above former levels, and that the present expenditure in wages is about all the traffic can bear; as brick prices have already been raised to a point which, in some instances, threatens to curtail business. It is hoped by leading manufacturers that the difficulty can still be amicably adjusted, and that the men will see the business side of the matter and accept the compromise offered.

One reason for the extraordinary demand for brick in the Ohio district, according to E. A. Gunn of the Queisser-Bliss Company, Cleveland, and the inability of manufacturers to meet it, is the shortage of labor. This fact is considered paramount at this establishment, and is mainly the cause of a 50,000,000 shortage of common-brick this year. Added to this may be the car and fuel shortage. Forty per cent. of the normal coal supply is being received by the Cleveland (Ohio) Brick and Clay Company, according to J. R. Hendershot. During the past two weeks this firm has been changing its production from re-press brick to wire-cut lug paving-brick. To meet the fuel situation the Barkwill-Farr Company is sinking two gas wells at Brookside park, in an attempt to forestall the changes of its equipment from natural gas to coal. To meet the increased cost of production, Frank Aulenbacher, salesmanager for the Lake Erie Builders Supply Company, announces an increase in prices. Rough shale brick has been increased from $18 to $21 and smooth shale brick from $17 to $20.

Oregon

The plant of the Monmouth (Ore.) Brick and Tile Company, according to reports, will soon be placed in operation following a shut-down, which has extended over about a year. B. N. Parridge of Dallas has leased the plant from C. Lorence, administrator of the estate of G. F. Shew, former owner. The plant was closed following the death of Mr. Shew last year. Mr. Partridge, who has been in the brick and tile manufacturing business in Dallas, will transfer his enterprise to Monmouth.

Pennsylvania

Gloninger and Company, located in the Arrott building, Pittsburgh, Pa., has recently taken the agency for the sale of the Latrobe (Pa.) Company's output in that city. This account was formerly handled by the Johnetta Brick and Coal Company, with offices in the First National Bank building, Pittsburgh.

Quotations that are being made on fire-brick in the Clearfield and Clinton county (Pa.) districts continue to climb. Last July shipments were made to Pittsburgh steel mills for twenty-three dollars a thousand, f. o. b. the plant. Labor conditions became so tense and the demand



for fire-brick so heavy that the manufacturers gradually advanced the price until at the present time thirty-five dollars a thousand is being asked for the material. And there is no hesitancy to buy, even at this high price.

The Darlington (Pa.) Brick and Mining Company, operating at Darlington and maintaining general offices at Pittsburgh, reports the outlook for business during 1917 as being very good, especially for face-brick. Due to the advance in price of fuel, labor and supplies, prices of face-brick will range somewhat higher during the coming year than they did in 1916. This company is installing new clay crushing equipment, which will involve the use of conveyors from the crusher to the dry pan. A large shed for the storage of crushed clay has been arranged for.

Manufacturers of fire-brick, sewer-pipe and other clay products in the Pennsylvania districts are being greatly inconvenienced by the car shortage, shipments, in many cases, being delayed for long periods. In and around Strassburg, where car allotments are supposed to be about six cars to the plant a day, manufacturers are compelled to be satisfied with that many cars a week. One large steel company in Pittsburgh offered a bonus of one dollar a thousand if fire-brick manufacturers would guarantee shipments within sixty days. In another instance, a steel company offered to supply the cars if the manufacturers would make shipments of the fire-brick within thirty days. However, this would be of little assistance to the manufacturers, since only the consignments to the one company would be affected by the quick movement, at the possible expense of other shipments.

Rhode Island

The Providence (R. I.) Brick Company, organized for the purpose of manufacturing and dealing in brick and other building materials, and capitalized at $20,000, was recently granted a charter by the secretary of state. Incorporators of the new concern are Frank E. King, Robert H. Matthews and William F. Leonard.

The Barrington (R. I.) Steam Brick Company, which ordinarily is closed during the late fall or early winter, has been enabled, because of mild weather conditions, to continue in operation and it is now believed that it will be possible to keep the work going until the latter part of the present month, and possibly later. A heavy snow storm at Christmas caused a slight reduction in the output, but did not seriously interfere with the business. The company had a number of orders which it was anxious to fill before suspending operations.

South Carolina

Baxter Genoble of Pacole, S. C., is contemplating the construction of a brick plant at Greenville, in the same state. Mr. Genoble is said to have received encouragement from members of the Greeenville Chamber of Commerce and other citizens.

Tennessee

The Southern Clay Manufacturing Company of Chattanooga, Tenn., has been awarded two good contracts in Florida. One is from the city of DeLand, to furnish and lay 40,000 square yards of wire-cut lug paving brick, and the other a joint contract from the city of Sanford and Seminole county to lay 14,000 yards of the same brick.



"NATCO'S" Way is to get the clay for their famous Hollow-Tile with Marion Steam Shovels. "Natco" has had plenty of opportunities for testing "Marions." The first purchase was made many years ago; now they have half-a-dozen "Marions."

Low Operating Cost, Large Capacity, Few Repairs Needed

are some of the reasons this customer has given for making "Marions" his choice. Yet there's nothing "special" about the Shovels we make for "Natco."

You might find it profitable to do *your* digging with a "Marion," too. Why not write us now, without obligation, for particulars?

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HIGH RESISTANCE MULTIPLE RECORD

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NOTE what this satisfied customer says:

"It gives us great pleasure to state that by the use of our Thwing Pyrometer Equipment, we were enabled to save in fuel alone, during six months, more than enough to pay for the installation and the equipment of same twice over, to say nothing of the satisfaction of knowing at all times just what heat we had in our kilns and improved quality of our product. In other words, your pyrometer has far excelled any hope that we had dared to entertain."

Further information on request. Send for copy of latest General Catalog, No. 8.

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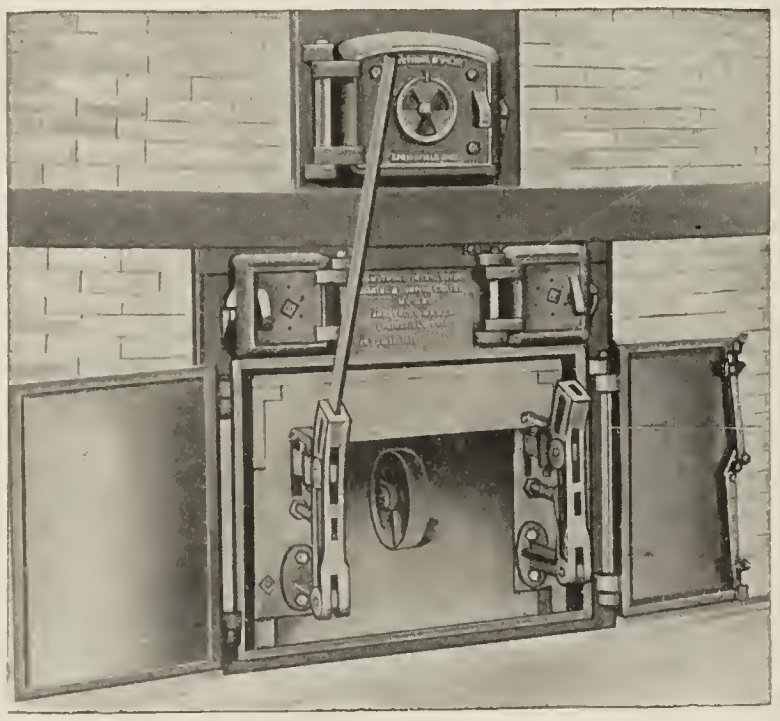


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You will get Perfect Satisfaction if you Insist that no Other Fan be Used at Your Dryer Except the One that Has for Many Years Been the Old Reliable Standby on Hundreds of Brick and Tile Plants. Insist Always on the

"Sirocco"

It's the Multi-blade Fan that Sucks Through a Maximum of Heat at a Minimum of Cost
Send for Our Book, "The Brick Dryer." It has a Lot of Valuable Information on the Drying of Clay Products. There is no charge for it.

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DETROIT MICHIGAN
BRANCHES EVERYWHERE



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.
SPRINGFIELD, OHIO

Texas

The first shipment of machinery for the large brick manufacturing plant to be constructed at Beaumont, Tex., arrived recently, according to J. J. Schneider, head of the Beaumont Brick Company. The concern was recently organized by himself and brother, H. J. Schneider, who at present are operating brick plants at Pearl River, La., and Laurel, Miss.

Information was given out recently that a new brick manufacturing company was being organized at Port Arthur, Tex., which will undertake the construction of a $150,000 plant, the output of which will be 30,000 brick a day. It is rumored that Warren McDaniel of Port Arthur is actively associated with the organization of the new company, since he has displayed much interest in the formation of such a company in the past. Mr. McDaniel was recently at Shreveport, La., and, it is said, interested a number of capitalists at that point in the enterprise.

Utah

During the past year the Provo (Utah) Press Brick Company has been successful in producing, after much experimenting, a mottled fire-brick of unusual hardness and beauty, which is made from clays mixed with white quartz. While the sales of this product have been unusually large, yet another product made by the company that has been unable to meet the demand for it, is drain-tile. During the past year the company installed a number of large size dies for the manufacture of drain-tile and sewer-pipe. Since this time hundreds of acres of land have been reclaimed with the company's products, and with the increased facilities for making drain-tile, it is hoped that a few years will see the establishment of many drainage districts around Utah Lake and that additional thousands of acres of water-logged land will be brought under cultivation.

Washington

Bricklayers of Seattle, Wash., are asking for an increase in wages from six to seven dollars a day, the new scale to go into effect on March first. The last mentioned figure is the union scale in San Francisco. The high cost of living is given as the reason for demanding a raise. Under present conditions the bricklayers are idle a considerable part of the year and this fact is given as one of the arguments for a higher wage.

West Virginia

The Mack Manufacturing Company, operating several brick plants in the New Cumberland (W. Va.) district, has increased the wages of its employes twenty-five cents a day. The company has a large amount of business on hand and its plants will undoubtedly be in steady operation all winter. The annual meeting of this corporation will be held at New Cumberland on January 24th, when officers for the coming year will be elected.

* * *

Des Moines Clay Company to Build New Plant

From the ruins left by a fire which recently swept the plant of the Des Moines (Ia.) Clay Company will be raised a new modern face-brick plant, to be erected at a cost of more than $40,000, according to Leon Goodman, vice-president and general manager of that company. The plant, it is said, will have an annual capacity of twenty million brick, which will be larger than that of any other face-brick plant in Iowa.



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A Place Wherein Letters That Have General Interest Are Published and Commented Upon

The Aftermath of the "What Shall We Strive For" Symposium

Unfortunately, the opinions of a few of our readers as to "What Shall We Strive for Most During 1917?" reached us too late to be included in the symposium which was published on this subject in the New Year's Number of January 2nd, and, therefore, had to be omitted. However, so many of the thoughts expressed by these "left-overs" have "teeth" in them, that it would be a distinct loss to the clayworking industry to forbid them the light of day. For this reason, these letters are given below, the first being one from G. Angus German, managing director of the Sun Brick Company, Toronto, Ont., which follows:

I think that what the clayworkers should strive for most during the year 1917 is SERVICE, written with big capital letters. SERVICE is something that you give to your customers besides a piece of mud. It is a better brick, burned better, more uniform in size, delivered promptly with better attention and a more kindly spirit.

To give SERVICE, the clayworker will have to improve his equipment, and by so doing, will naturally produce ware at a lower cost. He will have to improve the working conditions of his employes and will have to have a better understanding with his competitors as regards sales, because SERVICE is not something which is given for nothing, but is something for which the customer is only too willing to pay. Service which is given gratis is generally a pretty "bum" article, but actual SERVICE, if properly given, first of all helps the manufacturer himself by improving his methods and ideas and by enlarging his scope; helps his competitors because they see the good results he is getting from it; helps his customers because they get better results from the ware they buy from him, and in a word, it helps all along the line.

Personally, I think a man could write several books on SERVICE and what it means. Sometime, when I get time, I am going to write a volume or two on just what the word SERVICE really means.

I am afraid that this letter will get to you too late to be of service, as far as publication goes. However, it will serve to give you some idea of what we are striving for in this company.

SERVICE is something that is too often talked about and too little practiced. The indefinite meaning of the word in the minds of a great many of those engaged in the business of turning raw clay into superior building materials and other products is probably responsible for the absence of this quality in the relations of clayworkers with their customers. Less shading of prices in the selling of clay wares and more emphasis on the kind of service which the manufacturer is prepared to give his prospect would do the "Profit and Loss" account of a majority of the plants a world of good.

* * *

Eliminate Needless Expense

A message to clay products manufacturers that is filled with food for reflection comes from D. H. Applegate, Jr., manager of the Crescent Brick Company, Red Bank, N. J. It is as follows:









The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men— in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.20
Brick Drying (English edition)	1.00
Brick Houses and How to Build Them	1.00
Bricklaying, Rudiments of Practical	.60
Bricklaying System	3.00
Brick Work (Walker)	.60
Brickwork and Masonry	3.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	4.50
Clay Glazes and Enamels	5.00
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.00
Clay-Working Problems	1.50
Economies in Brickyard Construction and Operation	1.00
Effect of Heat Upon Clays	2.00
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Glazer's Book	1.00
Hollow Tile House, The	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.50
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.40
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Efflorescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

If the book you want isn't here ask us to get it.

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent import duty.

Address, **Book Department,**

Brick and Clay Record

445 Plymouth Court, Chicago, Ill.

"What should the clay products manufacturer strive for most during 1917?" The first thought that comes to my mind is the elimination of needless expense. Today, prices are good and many plants are able to make profits that previously had difficulty in meeting expenses. Now is the time to prepare for the next slump, which will put many plants back in the "no-profits" class.

It has been my observation that the chief difficulty in most clayworking plants is a lack of progressiveness—a disinclination to discard the old equipment before it falls apart in spite of the fact that some newer type might earn twice the profit, and a disinclination to cut away from tradition simply because it is tradition. This indictment, of course, does not apply to all plants but I know that it does apply to a great many—to many in fact that are termed successful. The main idea of most plant owners seems to be that expenditures must be kept at a minimum regardless of results. Everything must be cheap from the superintendent to the wheelbarrows and the consequence is that everything about the place shows a waste of effort. Few plants are large enough or of sufficient financial strength to acquire all of the effiicient equipment that they might use, but every plant can be kept in repair, worn parts discarded, and occasionally, when a new machine or kiln or some other equipment or method can be demonstrated to be a money-saver as against the old type or old way, it can be installed and the profit taken.

Adherence to tradition merely because it is tradition is one of the things that has kept the business hide-bound. There is too little independent thinking and too much trail following. A day or an hour or a quiet evening spent in studying out a new trail may lead to much better things than continuing to tread the old one. The best plant has not been built yet, and when it is, it may differ greatly from most of those now in use. Somebody will find a better way; therefore, it behooves us all to be on the lookout for it. There are many excellent devices and plans in use by a few which would benefit many. Trying the new trails will discover some of the good ones and distribute more widely their benefits. This applies not only to manufacturing but to selling and the management of labor as well. It is not within the scope of a letter to take up in detail any of these matters. Many of them have been written about and more will be. It is for each manager to select those that seem best to suit his conditions and try them out.

This is distinctly an age of progressiveness and the unprogressive can only fall from the ranks. The success attained in the largest manufacturing industries has been due more than anything else to the willingness of the managers to employ the best talent and best devices they could find regardless of how well the old seemed to answer the purpose.

Progressiveness is a fitting watchword for any industry and in none could it earn greater dividends than in clayworking.

The truth hurts sometimes, but if it does hurt, it is a good sign that something is "rotten in Denmark," to use the words of Hamlet. What Mr. Applegate says is sound, and being engaged in the manufacture of clay products, he knows what he is talking about. It might be well, therefore, if some of the facts pointed out above seem to hit rather hard, to spend a little time reflecting on their significance to you and see if there is not something that you can do to put your business on a better basis.

* * *

Says Associations Lack Support

Advice of a valuable nature and entirely worthy of being followed comes from Claude C. Blair, vice-president and secretary of the Bessemer Limestone Company, Youngstown, Ohio. Mr. Blair writes under date of January 4th, as follows:

It seems to me that the clay products industry is very weak on organization support. There are several first-class organizations kept up by an enthusiastic minority



that deserve the co-operation and support of every individual manufacturer in its particular branch.

I believe it is time we should wake up to the fact that these organizations should be universally supported if we are going to keep our industry up to the standard of other lines.

Regrettable as it is, the facts in the matter indicate that those associations that are putting forth their best effors to justify existence, seem to get less than ordinary support, in proportion to their merit. The industry in every branch needs its associations because it is thru them that the manufacturers are able to concentrate their strength in behalf of the advancement of their business. This is particularly true of advertising and promotion, while as regards plant improvements and quality of product, no better opportunity for the exchange of ideas and experiences can be had than that afforded at an organization meeting.

* * *

POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

Trade conditions in the sanitary pottery line were discussed and views exchanged recently at a meeting of the Sanitary Potters Salesmen's Association held in Trenton. Thirty-five of the members were present and many optimistic expressions were heard regarding the great prosperity looked for during the coming year.

Addresses were made by John A. Campbell of the Trenton Potteries Company. A. M. Maddock of the Thomas Maddock's Sons Company and H. S. Maddock of the same concern; William Devine, Jr., of Chicago, and George C. Dyer of the Sanitary Potters' Association.

Inability to make shipments has caused the financial receipts of many potteries to be the lowest in their history. Altho old accounts of buyers have been pretty well cleaned up, the railroads are now holding up shipments and manufacturers are unable to start cars rolling.

The general demand for covered jugs is exceptionally strong this season. Every manufacturer who is showing such a line is being offered all of the business that he can conveniently handle.

The present situation in the clay market is anything but encouraging. Clays have been held up on account of numerous embargos and a shortage of cars. Of late a number of pottery manufacturers in the northern Ohio district have been unable to get delivery on clay. This has seriously handicapped operations. While there has been an increase in prices of clays, the shippers have withdrawn cash discounts and have made all bills net.

Calender plates with 1918 dates are again forming a leading feature of the current season's offerings from the O. E. McNicol Pottery Company, East Liverpool, Ohio. Fifty different subjects are available on this line, one particular feature being the bust likeness of moving picture stars. The battleship series of calendar plates made by this firm last year is a very popular one, and some of these centers is to be found in the 1918 line.

It is rumored that the old plant of Patterson Brothers, located at Wellsville, Ohio, may soon be placed in operation again. This plant was formerly engaged in the man-

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE

R. D. WOOD

AND COMPANY

Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.



KILN IRON WORK

BANDS GRATE-BARS CASTINGS

Prices reasonable, figured on a narrow margin of profit. Every riveted lap is full strength—figured by engineers — **no guess work.** Only first-class materials used. **Our workmanship cannot be beat.** Rivet holes guaranteed to match—you do not have to use a drift punch and drill to assemble our bands.

Special Replaceable End Grate Bars for slanting grates, made of gray iron—no scrap. All kinds of grate bars and castings furnished.

We are big enough to buy and sell at bottom prices, but not too big to give YOU individual, personal SERVICE.

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are giving satisfaction—recently installed in some of the largest plants in the United States. Let us tell you about them.

WE BUILD ALL KINDS OF KILNS.

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High and Spring Streets

COLUMBUS, OHIO

ufacture of yellow-ware but it is stated that, if placed on the active list again, an entirely different line will be made. Electrical porcelain may make up the larger part of the company's output.

At the annual meeting of the stockholders of the West End Pottery Company, East Liverpool, Ohio, the following officers were elected: President, W. E. Cunning; vice-president and general manager, Wm. H. Burgess; secretary and treasurer, Charles C. Ashbaugh. These officials have served in like capacities for many years.

The Wheeling (W. Va.) Tile Company has authorized an increase in its capital stock from $100,000 to $300,000, to permit the purchase of the La Belle Pottery. The La Belle plant has been out of operation for several years, but will undergo remodeling at once and soon be used for the manufacture of porcelain ware.

Buyers visiting the West End Pottery, East Liverpool, Ohio, are being presented with a souvenir in the shape of an oval cigar ash tray with a match holder attached. The item is a product of the plant, and is in a number of different decorations.

* * *

A Bulletin that Will Forestall Failures

A bulletin entitled "Practical Handling of Iowa Clays," written by Professor Homer F. Staley and Milton F. Beecher, was recently published by the Engineering Experiment Station of the Iowa State College, Ames, Ia., and contains a wealth of valuable information for the manufacturer of burned clay products. The bulletin is now available and can be had by sending a request to either the Engineering Experiment Station or the Ceramic Department of the university.

The first chapter of this publication should be of especial interest to a great many clayworkers since it is intended to discuss the establishment of clay plants in unfavorable situations and to warn prospective investors against the wiles of the speculative promoters and the unwise enthusiasm of local "boosters." This section covers such points as the value of engineering service, locating the deposits, preliminary sampling and testing, chemical analysis, extended tests, complete survey and sampling, uses of data obtained, method and cost of digging, location of plant, kind of ware and the economic problems that are encountered.

"The other two chapters," to use the words of Professor Staley, director of the Ceramic Department of the Iowa university, "are really sort of primers in the ceramic principles involved in the manufacture of crude clay products, which are, of course, applicable to the manufacture of these products in states other than Iowa." The second chapter itself is given over to the manufacture of clay wares, with especial reference to Iowa conditions, and covers such points as the preparation of clays, types of clays to be found in Iowa, their preparation, molding and drying, while the third chapter treats on the subject of physical and chemical changes that take place in clay during burning. In this part of the booklet is discussed in an exhaustive and practical manner, the dehydration period of the burn, which covers watersmoking, chemical dehydration, heat treatment and the finishing up of that period; the oxidation period which includes the expulsion of CO_2 that takes place, the oxidation of carbon and sulphur, the change of ferrous oxide to ferric oxide, the heat treatment essential at this point, and the changes that take place during the oxidation



period; and lastly, the heat treatment of the vitrification period is covered. Following this are a few short paragraphs on the excess air needed for burning and the prevention of radiation losses by the construction of better kilns and shortening the length of the burn.

It is not necessary to be within the boundaries of the Hawkeye state to procure one of these interesting and valuable booklets. Send in your request for one at once, lest the seven thousand that have been published are distributed before your letter arrives. They are free of charge.

Scene Is Set for Canadian Convention

Before the next issue of "Brick and Clay Record" is off the press, the big convention of the Canadian National Clay Products Association will have been held, and what promises to be one of the best gatherings of that organization that has ever taken place, will have passed into history. Therefore, wait for no more notices regarding the meeting of your Canadian brothers in mud-mixing, but lay your plans now to be at the Royal Conneaut hotel, Hamilton, Ont., on January 23rd, 24th and 25th.

Many notable figures in ceramics, both those across the border and from this side of the line, have prepared papers and discussions for the convention that will be of great interest and value to those who attend. Also, the entertainment to be held on the evening of Tuesday, January 23rd, and the "big feed" scheduled for the succeeding night, will offer pleasant and joyous climaxes to days of big accomplishments.

PAPERS, QUESTION BOX AND EXCURSIONS

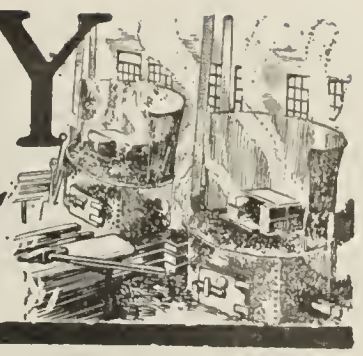
A discussion of the clays to be found in the vicinity of Hamilton will provide a most appropriate starter for the meeting, and will be followed, with little loss of time, by the presentation of papers and lectures on such subjects as labor-saving devices on soft-mud brick plants, the practical application of pyrometry to burning clay wares, the standardization of clay products, success on a one-horse tile plant, and burning tile with natural gas.

In addition to these papers presented by men qualified to handle their subjects, will be conducted a question box by A. F. Greaves-Walker, who will also read a paper on burning clay products in a producer-gas-fired kiln. The delegates present will drop a question regarding some difficulty they are experiencing into the question box and have it discussed by the other members present. These questions, of course, will have no identification marks, and unless agreeable to the questioners, no names will be disclosed. The possibilities for profitable co-operation in this manner are unlimited. A portion of the convention will also be given over to excursion trips to manufacturing plants in the city of Hamilton.

The gavel will be swung by J. Edward Frid, president of the association, and manager of the George Frid Brick Company, Hamilton, while the delegates will be assured a royal reception in the convention city by the chairman of the Hamilton Reception and Entertainment Committee, Ryland H. New, president of the Toronto Sewer Pipe Company.

The National Paving Brick Manufacturers' Association will be represented at the annual convention of the American Road Builders Association at Boston, in February, by F. R. Williams, a Cleveland paving engineer. Mr. Williams will speak on the latest development of the brick-paved street as seen in Cleveland.

GANDY and Gases



"We are pleased to advise you that the Gandy Belting we have been using for some time in our forging shop has given us excellent satisfaction. We use it in places where it is exposed to the heat and gases in preference to anything else we have ever tried. We would recommend it to anyone being obliged to expose a belt to such conditions."

The gases common to some manufacturing operations and so unavoidable in many plants, are exceedingly harmful to most belting.

This latter shows what action a manufacturer should take when he learns that such conditions are shortening the life and service of his belts.

Aside from being advantageous in duties such as this, GANDY Belts are equally superior in conditions where oil, steam, water, heat and dust are encountered.

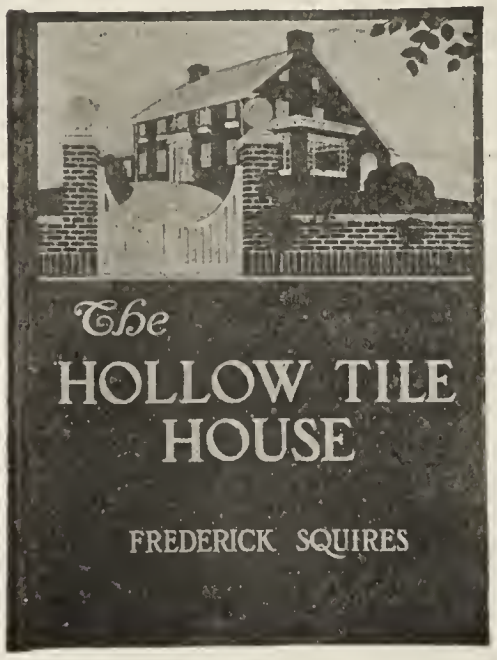
Gandy Belts in all kinds of belt service, live up to the reputation for dependable service that they have gained in 39 years. They are ready to prove themselves dependable in your work—and save you money at the same time. Prices, samples and full information sent upon request.



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If you make, sell or use Burned Clay Fireproofing



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THE HOLLOW TILE HOUSE

by Frederick Squires

is brim full of valuable information and good reading matter on this new field of hollow tile in residential construction, its history, how the tile is laid up, cost data and a host of other interesting subjects, all of which is skilfully woven by the author into a very fascinating story. A large number of illustrations give the reader an idea of the architectural beauties and possibilities of the hollow tile house. It will be time well invested to read this book.

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Book Department

Brick and Clay Record

CHICAGO

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

New Five-ton Model

M. L. Pulcher, vice-president and general manager of the Federal Motor Truck Company of Detroit, announces that a new five-ton model is now being manufactured by the Federal company. Previous to adding this five-ton model to its line of trucks, Federal officials thoroly tested out the new truck, and it was driven thousands of miles up severe grades and over all sorts of roads that the test might be most thoro.

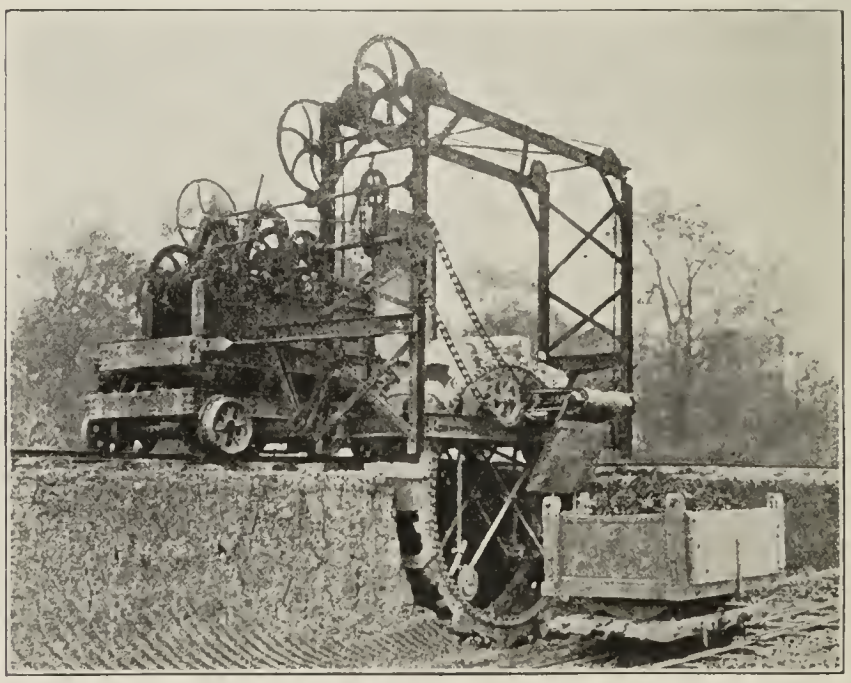
One of the tests consisted of a trip of 1,176.6 miles; the five-ton truck being loaded with sand, and driven from Detroit to Pittsburgh, and then brought back to Detroit over Pennsylvania, Ohio and Michigan roads. Federal officials decided upon this long run to Pittsburgh that the truck might be given a thoro test under most strenuous conditions. The trip to Pittsburgh was made via Toledo, Cleveland, Canton and Beaver Falls, Pa., and for three weeks the truck performed titanic tasks up the Pittsburgh grades.

After the tests in Pittsburgh, the truck was driven back to Detroit via Beaver Falls, Youngstown, O., and Cleveland, the trip being made in five days. Demonstrations were given along the route in various towns and cities where there are Federal dealers.

The mechanical features of the new model, which is a larger edition of the well known 3½-ton Federal, include of course the worm-drive rear axle used on all models put out by the Federal company for the past three years, heavy motor with five-bearing crankshaft of nickel chrome steel, force feed lubrication operated at a pressure of 150 pounds, feeding all bearings, including the piston wrist pins. The cylinder block has separate heads to each cylinder, allowing the combustion chambers to be machined inside, thereby insuring even compression.

An enclosed dry plate clutch, very easily operated, connects the motor with a four speed transmission mounted "amidship"; this, in turn, is connected with the rear axle worm shaft by a tubular propeller shaft with massive enclosed universal joints.

Springs of strong chrome vanadium steel, radius rods, and hollow spoke steel wheels are special features of an exceptionally easy riding and conveniently operated chassis.



The Illustration Shows at a Glance How the Clay Is Thoroly Mixed by the Buckeye Digger—Requiring Less Preparation In the Machine Room



For the purpose of the test the chassis was provided with a steel hydraulic dump body which, filled with sand, made a total load of 20,000 pounds, and the way the motor handled this load on the severe grades was most gratifying to the Federal engineers.

Mr. Pulcher says that the Federal distributors have anticipated production on this big Federal by placing advance orders in large numbers. "We look forward to a great increase in business with the addition of the new five-ton model to our line of trucks," said Mr. Pulcher.

Who Doesn't Know Buckeye?

For several years The Buckeye Rolling Mill Company, Steubenville, Ohio, has been catering to the clay products industry and several hundred clay plants attest to the high character of this company's product.

The Buckeye Company has been serving the trade for so long that it knows exactly what the needs of the industry are in this connection, and it is, therefore, easy for it to ship to each individual customer the rails and rail equipment that are particularly suited to each individual plant.

During the past year, when it was so hard for concerns to get shipments of anything that required steel for making, The Buckeye Rolling Mill Company saw to it that its customers were well cared for. It is this kind of service that has enabled it to build up so profitable and satisfactory a trade in the industry.

Tire Developments

Tires have become so vital an element of truck service that their every development is viewed with interest by the truck-using world. Truck users are coming to realize that more depends upon the tire equipment than has heretofore been recognized—that tires must protect the engine from vibration and reduce repair expense in addition to preventing the road shocks from affecting the load.

Some truck manufacturers and truck users have sought relief thru the use of dual pneumatics—two tires on each rear wheel. But this expedient has its disadvantages, of which the difficulty of maintaining equal air pressures and of removal of the inner tire in case of trouble, is quite prominent. The tire engineers of The Goodyear Tire and Rubber Company, Akron, Ohio, have declared in favor of the single pneumatic tire for trucks and have during the last year effected a wonderful development in this field.

"Our newest development in this line is a Cord Pneumatic Truck Tire," states The Goodyear Company's sales manager. "We have for some time been making pneumatic truck tires of fabric construction which have turned some wonderful mileages at a very low cost, but our tire engineers are always searching for something better, and have now applied the cord principle to these tires, with remarkable results.

"Our cord tire for trucks is not a specially constructed tire. It represents simply the application of this principle to tires made in the proper sizes for truck use. In the method of construction they are identical with our cord tires for touring cars, which won so many notable victories on the speedways of the country during the racing season that is just past.

"They come in the All-Weather Black Tread, and are made in sizes 36x6, 40x8 and 42x9, with from 10 to 16 lines of cords, according to the size of the tire. In many kinds of service we have made exhaustive tests which have proven that the tires are right, and we are assured of a phenomenal business in this line."

S. C. Karzen Joins Bonnot Company

The Bonnot Company, Canton, Ohio, manufacturers of the splendid line of machinery bearing their name, have during their 25 years of catering to the clay-products industry, given very special attention to all phases of clay-products manufacturing. They have realized that the well balanced plant is the only one that is entitled to be called efficient, and with this in view they have always assisted their customers to purchase machinery such as had a direct bearing on all other departments of each plant.

With a view to still further increasing the effectiveness of Bonnot Service they have completed arrangements for a new Ceramic Engineering Department and have been very for-



Westinghouse Motor Driving a Dry Pan

Why Individual Motor Drive Is Best

No. 1

Throw off the belts from all machines and test the power it takes to operate the line shafts—you will be surprised to discover what a large percentage of power is wasted.

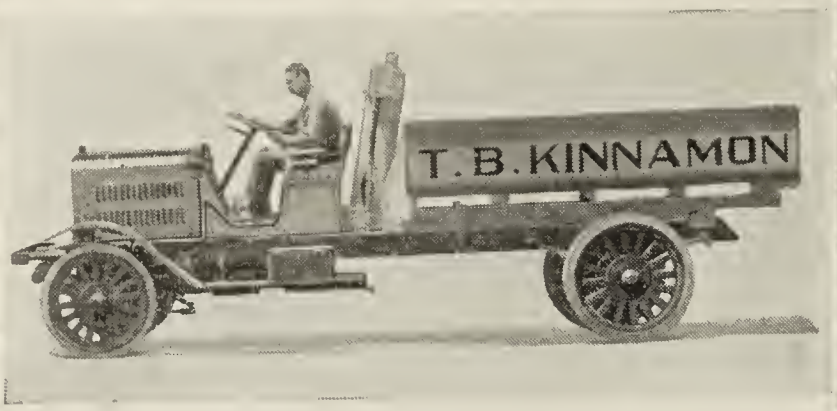
Westinghouse Motors

with central station power—saves power bills—when the motor stops the power cost stops—machines can be arranged so that handling of materials is reduced to a minimum.

A card brings Booklet 3072

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East Pittsburgh, Pa.
Sales Offices in All Large American Cities





Just as the T. B. Kinnamon Company chose KisselKar Trucks, so will you after your first investigation.

KisselKar Trucks are rapidly becoming the ONLY CHOICE among business men in the brick and clay business who demand the UTMOST in truck performance. They recognize the necessity of putting their transportation department on an EFFICIENCY BASIS and keeping it there.

These are the concerns who are always AHEAD on delivery, not behind. They never disappoint their customers because their KisselKar Trucks never disappoint them.

You cannot afford to experiment with your transportation department. There is a KisselKar Truck built in the right size that will fit your haulage problems.

Let us send you truck information and data on how KisselKar Trucks will do this.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfected worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns

Six sizes—from the 1500 lb. Delivery up. Chassis prices $950 to $3350.

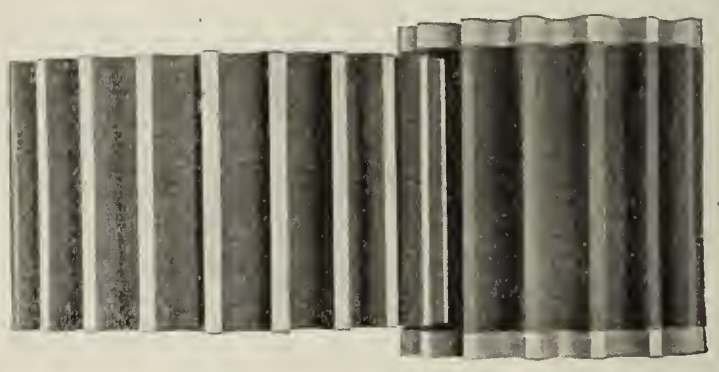
KISSELKAR TRUCKS

tunate in obtaining S. C. Karzen, Ceramic Engineer, to conduct it. This department is to be placed at the service of all clay-products manufacturers, and Mr. Karzen will be glad to aid them in their clay mining, manufacturing and burning troubles.

Mr. Karzen is a 1910 graduate of the Ohio State University, Ceramic Engineering. He was with the Denny-Renton Clay and Coal Company, Seattle, Wash., for a year. Later with the American Sewer Pipe Company, Akron, Ohio, for five years during which period he managed four of their plants. He also spent a period with the Cambria Clay Products Company, Blackfork, Ohio, as superintendent. His experience covers both brick and hollow ware. He is an expert burner, with a wide experience in handling different types of clays and wares.

He is a member of the American Ceramic Society, for whom he has written a number of articles, some of which have been reproduced in "Brick and Clay Record." "Notes on the Regulation of a Waste Heat Double Decked Dryer," "Design of Waste Heat Furnace for Paving Brick Dryers," "Notes on the Cooling of Vitrified Sewer Pipe," "Defects Encountered in Burning of Vitrified Hollow Ware, and Methods of Elimination" are some of his publications. The Bonnot Company invite all clay-products manufacturers to avail themselves of the service Mr. Karzen is in position to render.

This company has also recently mailed to the trade a Daily Reminder, which is a little book brim full of valuable in-



Cut Steel Gear Meshed with Fabroil

formation, and also to be used as a diary, daily personal cash book, and for other convenient purposes. A copy of this booklet will cheerfully be sent to anybody in the industry who has not received one, if request is made of the Bonnot Company at Canton, Ohio.

Fabroil Gears

It is just as true today as it was in Benjamin Franklin's time that "Necessity is the Mother of Invention." A few years ago the General Electric Company, in its shops at Schenectady, New York, was operating a large punch with a motor, and almost constant difficulty was experienced with the motor pinion. Iron, brass, steel and the various non-metallic pinions had been tried. All but the steel wore out in a few days, and the steel produced an unbearable noise. This condition was studied by that company's engineers and resulted in the conception of the Fabroil Gear, and the first experimental pinion was applied to this troublesome machine and proved a success. For five years now this same Fabroil pinion has been driving this punch and is still giving satisfaction.

These gears have been applied in scores of shops of all kinds, and during the past five years have proven their great worth. They have proven that they can be made a success in a wide variety of applications in mechanical transmission of power, where because of noise, or other reasons, the intermeshing of metal gears is impracticable or undesirable .

The strength of Fabroil gears has proven in various tests far superior to that of any other non-metallic gearing and by virtue of a measure of elasticity, which allows meshing teeth to come to a good bearing across the full width of the face and absorb the shock, they may be safely used in practically all kinds of service within the limit of strength of cast-iron gears.

These gears are capable of much longer life than cast iron gears and their efficiency is not lessened because of oil or dampness or any other similar determent conditions. Neith-



er are these gears affected by atmospheric changes, nor do they shrink or swell in extreme dryness or dampness.

Clay-plant managers, as well as clay-machinery manufacturers, have for a long time been greatly interested in the development of gears that could be made highly satisfactory for use under the trying conditions existing in the average clay-products plant.



Fabroil Gear

The engineers of the General Electric Company hold themselves in readiness to discuss this matter thoroly with any clay-plant manager with a view to determining as to the satisfactory results to be derived from the use of Fabroil gears. Further information can be obtained from any of the sales offices of the General Electric Company or at their principal offices in Schenectady, New York.

Explosives

When the Du Pont Company of Wilmington, Del., is mentioned, many people think of explosives and war. Such is a wrong impression. True, it is the largest powder maker in the world, but explosives should not always be considered a destructive agency. Everybody knows explosives are used for war purposes, but they forget that they are also of great industrial benefit, being used for construction, mining, agricultural and sporting purposes.

The company is not only interested in explosives, but it has also put on the market numerous solvents and solutions necessary for the practical and economical manufacture of drugs, chemicals, fertilizers, adhesives, preservatives and many other such products.

It is the largest manufacturer of leather substitutes in the world. Such leather is now being extensively used for automobile, furniture and railway car upholstery as well as for book-binding. During 1916 a large addition to the Newburgh, N. Y., plant was started. The scarcity of leather is working the plant night and day, and then it is not keeping up with the orders.

To clay-products manufacturers, the Du Pont Company is best known in connection with Red Cross Dynamite and other similar products so largely used in the blasting of clay and shale banks. It has been catering to this trade now for several years and has developed a splendid business because of the uniformity of its product, which is a quality that is absolutely essential in connection with blasting.

This company has issued a booklet, devoted exclusively to blasting on clay plants, which it is willing to send to any clay-products manufacturer who will take the trouble to ask for it. A letter or postal addressed to the Du Pont Company, Wilmington, Del., is all that is necessary.

Chicago Office for Clarage Fan Company

L. O. Monroe is in charge of the Chicago office of the Clarage Fan Company, Kalamazoo, Mich. Located at 123 W. Madison street, Mr. Monroe is in a position to give excellent sales and engineering service to fan customers.

The Clarage Fan has long been used on clay driers, and the company expects to gain new users and friends among the clay products manufacturers.

Homestead Valve Appointments

The Homestead Valve Manufacturing Company of Homestead, Pa., announce the appointment of the following agents to represent them in their immediate vicinities:

In Atlanta, Ga., the Seeger-Walraven Company; in Joplin, Mo., the Joplin Supply Company; in St. Louis, Mo., Geo. T. Matthews and Company.

A complete valve catalog will be mailed on request to any of these branch offices or the home office.

The Armstrong Grate

A new record for fuel saving has been accomplished by the Armstrong Grate on a plant in Tippecanoe, Ohio.

How Much Does It Cost To Operate?

It is not only your right, but your duty, to ask this question when you set out to buy any kind of machinery or equipment. We welcome this kind of inquiry because we are fortified with facts and figures to prove that the

BUCKEYE TRACTION CLAY DIGGER

is one machine that is operated at low upkeep cost, with either electric or gasoline power.

Milo V. Harrison, the efficient superintendent of the Groveport, Ohio, plant of the Claycraft Brick Co., said this recently regarding the Buckeye Digger they have used for several years.

"This Digger loads the clay in 1½ yard clay cars and one man shifts the cars back and forward under the belt conveyor. This man also looks after the machinery and we pay him 22½c per hour. The Digger cuts 7 feet deep and 18 inches wide and with the conveying and all machinery it pulls only 55 amperes on 220 volts D. C. current, making the actual cost of operating the Digger very small. We have loaded 160 cars (240 yards) in 10 hours. The upkeep of the machine is very little. The cutters are the only parts to wear and our own blacksmith relays these with steel. Two sets of cutters last all season."

Doesn't this convince you that before a new season starts you should find out what the Buckeye will do for you? Our engineers will study your proposition and tell you.

THE BUCKEYE TRACTION DITCHER COMPANY

FINDLAY **OHIO**





The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

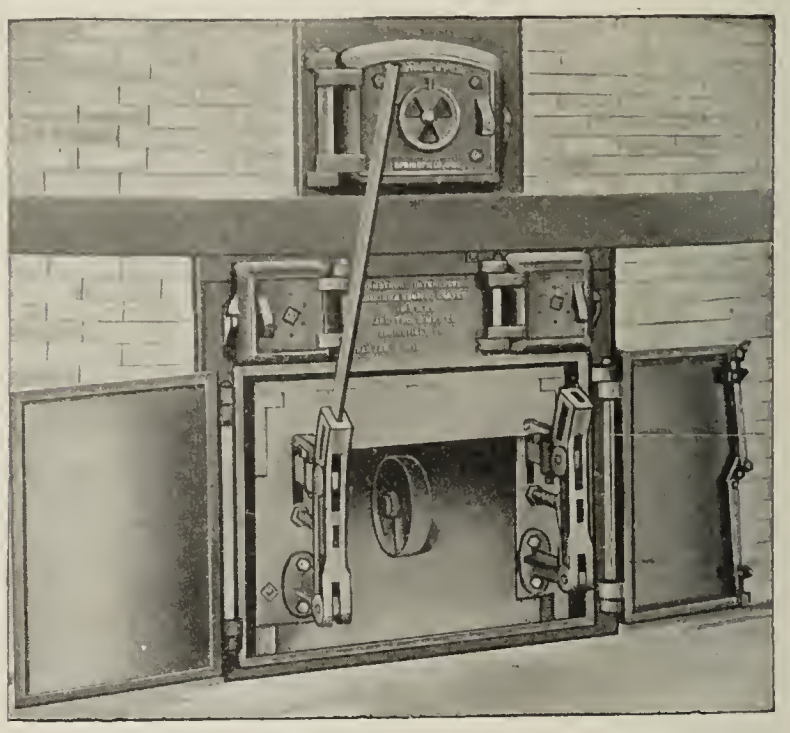
Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

The grates were installed under the boilers and the results were as follows: Eighty-nine per cent. less cleaning,



Armstrong Grate Designed for Kiln Furnaces

less ashes, less clinkers and a fuel saving equal to the cost of the grates in four months.

These grates are also designed for kiln furnaces and are doing excellent work.

Link-Belt Company Blows in New Furnace

The fifth furnace at the Belmont plant of the Link-Belt Company, Indianapolis, Ind., was blown in the middle of December, adding materially to the capacity for producing malleable link-belt. Extensive building operations at the Belmont works have been completed, and the manufacturing activities re-organized to keep pace with the increasing demand for link-belt for all conveying, elevating and power transmission purposes.

A New Way to Babbitt Your Bearings

The lubricating value of graphite is so well known that it seems unnecessary to do more than to repeat here that it is one of the very best known lubricants.

The problem of securing a bearing as frictionless as possible has almost been solved by adding the graphite to the babbitt. Theoretically a perfectly smooth surface is frictionless, and this condition is almost attained when the graphite fills up the pores and score lines of the babbitted bearing.

This condition of a smooth graphite babbitt bearing has been made possible in this manner. A screen sheet approximately one foot square, made of bronze babbitt wires, and very pliable, is used. On this screen about one inch apart are placed little cylindrical chunks of pure graphite. This is

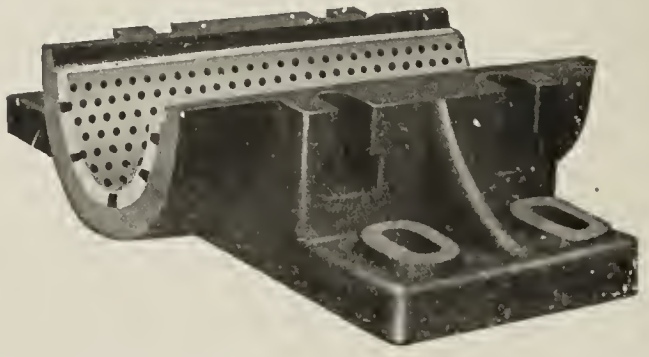


Figure 1—The Cut Sheet Is Laid in the Bearing, the Mandrel Is Placed in Position, and the Hot Babbitt Poured in as Usual

shown in the accompanying photograph of catalog cover, Figure 2.

To use this in babbitting your bearings, simply cut ma-

SAY I SAW IT IN BRICK AND CLAY RECORD

terial from the square sheet, calculated to fit in the bearing and cap.

This cut sheet is laid in the bearing, the mandrel (or shaft) placed in position and the hot babbitt poured in as usual. The bearing obtained is as shown in Figure 1.

The results from this are actually unbelievable in some instances. In the majority of cases where a bearing is torn out and rebabbitted every six months, the graphite sheet secures a life for the bearing of from three to four years. The saving accomplished in the reduction of babbitt required is considerable and pays for the graphite sheets over and over again. But the big saving is in the lack of shut downs and delays caused by putting in new bearings. In some plants this item actually assumes proportions of thousands of dollars each year. Power loss, due to numerous friction areas in the bearings, is almost eliminated; hot boxes are rare, and a great saving in time is accomplished.

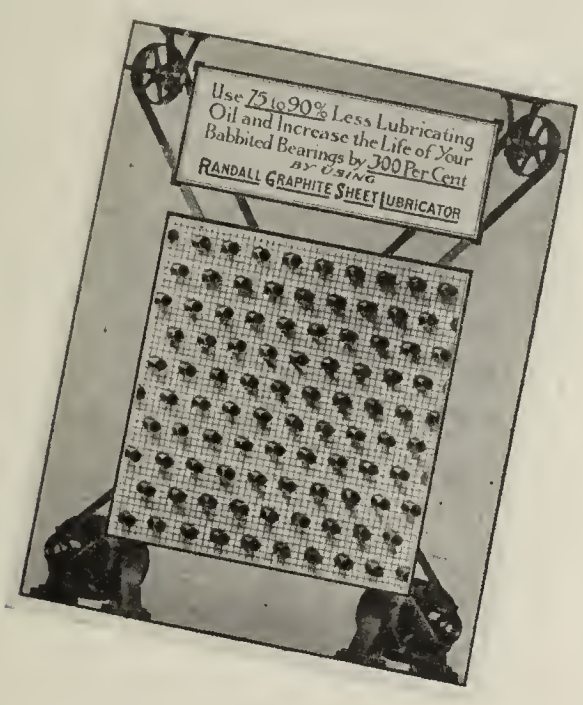


Figure 2—Little, Cylindrical Chunks of Pure Graphite Are Placed on a Screen Sheet, Very Pliable, Made of Bronze Babbitt Wires

These graphite sheets are furnished ready for use by The Randall Graphite Sheet Lubricator Company of 816 West Lake street, Chicago, Ill.

Hold Annual Sales Convention

January 5th and 6th, The Lincoln Electric Company, Cleveland, Ohio, held their Annual Sales Convention, at which fifty of their district representatives and sales agents were present.

Policies for next year were discussed and plans worked out for close co-operation with users of electric motors.

The convention closed with a banquet at Hotel Statler.

Electric Locomotives

For the plant already equipped with electricity the electric locomotive is an ideal method of hauling the raw material from mine or pit to the plant.

Its efficacy lies chiefly in the fact that it is always ready, requiring neither water, gasoline nor coal replenishment to keep it moving.

The cheapness with which it is operated is amazing, due to refinements in the present day modern motor.

The Goodman Manufacturing Company of Chicago, Illinois, have sold these locomotives for use in hauling clay and for dry car transfer work.

I. E. Burkett of Schofield-Burkett Construction Company, Macon, Ga., has accepted a very cordial invitation to address the Iowa Clay Products Manufacturers' Association, as an authority on excavation, on January 18, at their convention at Ames, Iowa.



LAKEWOOD
ELECTRIC TRANSFER
TRUCKS

Are made single, double or triple, and are built only to specifications. This assures you that you will have a transfer truck that is exactly suited to your needs.

Our Engineering Department will gladly furnish layout and specifications for tracks and transfer trucks, all worked out on a scientific basis to insure greatest efficiency and economy of operation.

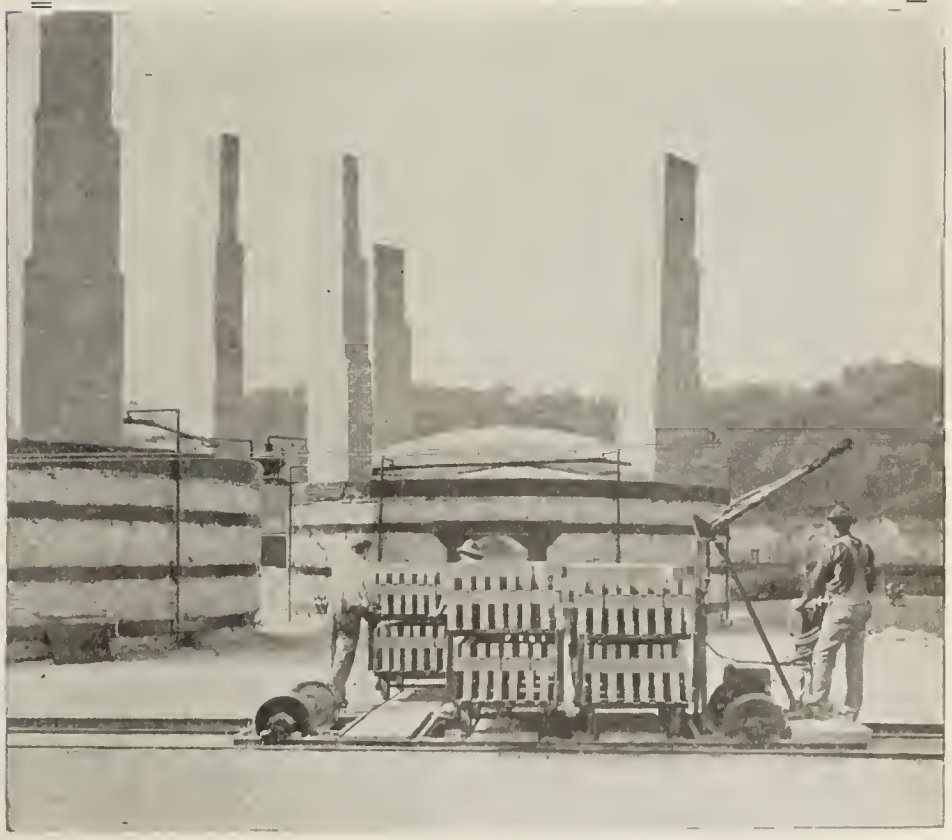
Will you let us come and talk this over with you? No obligation on your part.

The Lakewood Engineering Co.

Cleveland, Ohio

We make cars of all kinds, track and track equipment, clam shell buckets—the line that has established the

"Leadership of Lakewood"







SAY "I SAW IT IN" BRICK AND CLAY RECORD

The EDITOR'S CORNER

A VETERAN BRICKMAKER in a recent letter strikes a keynote when he says that it is no longer a question of making ware that will sell, but selling the ware that we make. In other words, manufacturing problems are fast fading into the background in the industry, inasmuch as there are few judiciously promoted plants that cannot make a good product, and merchandising problems are forging to the front with corresponding rapidity.

Let us cultivate intensely the logical market for our brick or tile, eliminate the shipping to distant markets and so bring about a condition in the several zones or sections of the country that will stabilize the business as it never has been steadied before.

The problems of distribution of the ware should be given more attention on the part of the manufacturer and in this connection more money should be spent in advertising. This is harping on an old subject, you may say, but we believe that if you will refer to a short item on another page of this issue entitled, "How the Lumber Associations Will Advertise," you will agree with us that publicity and sales promotion is a subject that is very much alive.

* * *

This Magazine a Cost Forum

IT IS with not a little satisfaction that we note the rapidly growing interest in cost accounting that is manifesting itself. There is hardly a meeting of any importance in clayworking circles, nowadays, at which some mention is not made of this important phase of modern industrialism.

In this connection, "Brick and Clay Record" has been glad to be able to present to its readers a comprehensive and uniform cost keeping system which is being published issue after issue under the head of "Cost Accounting for the Clay Plant." At the other end of the string, G. W. Greenwood, secretary of the United Fire Brick Company, Uniontown, Pa., is writing under the title "Counting the Cost," and maintaining that the so-called "comprehensive" cost account systems are unnecessary, to say the least, and further stating that a simple bookkeeping system is all that is required to obtain an accurate knowledge of what the ware is costing to make.

Between these two extremes, as it were, others are offering cost keeping advice that is equally wholesome and profitable if followed. The next two issues of "Brick and Clay Record"—those which will be dated February 13th and 27th—will contain papers that belong to this latter class.

Some are saying, no doubt, that all of this talk about cost is "hot air," "bunk" or "piffle"—that a good thing is being overdone. We do not believe that we have arrived as yet at that point in the manufacture of clay products where such criticism is justified. Too many clayworkers are yet without any system whatever for keeping costs, to let up for one moment the advocating of better cost keeping methods, so let's keep up the good work.

* * *

Get Acquainted With Your Competitors

A BETTER KNOWLEDGE of your competitor is essential to the progress of your business. Spend more time with him or them, as the case may be, if you ever expect to get anywhere worth while.

Frequent meetings of local associations or brick clubs are helpful in this direction, and such gatherings as the recent dinner and entertainment given by the Chicago Face Brick Association to its salesmen, are excellent examples of good business judgment. The very fact that the majority of the salesmen and their employers operating in the Chicago market came together in the same room, rubbed elbows and freely exchanged ideas was productive of untold good.

Clay products manufacturers and dealers in other cities would do well to fall in with the pace set by the Chicago association, and give themselves and their salesmen an opportunity to visit with each other.

The World's Opinion of Clay Plant Labor

AT THE ANNUAL MEETING of the Institute of Paving Brick Manufacturers, held in Cleveland, Ohio, during December last, one of the members commented on the poor opinion in which the art of making brick and other clay products is held by the whole world. To prove his point, he cited a recent recommendation of the German emperor that war cripples be assigned work in the Fatherland's clay products factories.

In line with this statement, and in discussing the problem of furnishing work to the state's convicts, the St. Joseph (Mo.) "Gazette" says among other things in the January 1st issue, under the heading "1,100 Convicts are Out Today," that "chiefly foreigners of only a short residence in Missouri" work in that state's brick plants "for very low wages."

It is very evident that the author of the statements contained in the newspaper article referred to, knows little about brickmaking or he would never have made the last-mentioned statement. Any clay plant owner can enlighten him about the present status of wages in the clayworking industry. However, when the writer in question says that chiefly foreigners of only a short residence in their particular locality are employed, he is voicing the common impression of the public.

The handling of labor about clay plants in past years has been largely responsible for this poor opinion of the craft. Thanks, however, to scientific management, modern industrial engineering and the bonus system, the status of the labor in the clayworking industry is fast changing. In this re-adjustment, the manufacturer who is handling his men intelligently is going to come out on top, as it does not take a workman long to pick out the most desirable place at which to offer his services. The concern that is looking only for the best men and who believes in developing the best there is in a man, is going to win out in the end.

The DEALERS' VIEWPOINT

A Good, Strong Talk from One Who Is on the Market's "Firing Line," Showing the Necessity for Paying More Attention to the Distribution of Burned Clay Building Materials, Which Includes the Inauguration of More Forceful Advertising Campaigns, the Readjustment of Unfair Building Codes and Greater Activity Along the Lines of General Sales Promotion



MISS ROSING

By Astrid S. Rosing

Delivered Before the Annual Meeting of the Illinois Clay Manufacturers' Association, held at Champaign, Ill., January 15th, 16th and 17th, 1917.

I WISH TO THANK YOU for the honor that you have conferred on me in asking me to address you today. The subject assigned to me is a large one and on which there is much more to be said than I could crowd into the time allotted to me this afternoon. The dealers being given in the plural form would indicate the view-point of the many dealers who handle, sell and stock your products. Perhaps I come in closer contact with them than most of you present today. I come in personal contact with a great many of the dealers and with others thru my salesmen, and I should be able to voice their attitude toward this great industry.

QUEER SENSATIONS ON THE "FIRING LINE"

Undoubtedly, all of you know my position in the clay industry. I am not a manufacturer, I am a seller—just a dealer—perhaps, on a larger scale than most of those with whom I come in contact. In a measure I am the sales department of some of the plants whose output I handle, and, as such, I am at the front, right on the firing line, where you feel the pulse of the market—feel the effect of the demand, or the lack of it, for your material—and I can assure you that sometimes it is a mighty funny feeling. I will tell you more about that feeling after a bit.

Before coming down here, in order to analyze exactly what might be expected of me, I took the program of the convention and carefully studied the subjects that were assigned to the other speakers. Monday morning was devoted to the construction of kilns; Monday afternoon to the deposits of clays and their analyses; this morning to the costs of manufacture, while a portion of this afternoon is the only time recognition is given to the great problem of distribution.

In recognizing the responsibility that was placed on me, I wonder at the same time if the association is not underestimating the value to the industry of the work done by the distributor, the work which is left for each and every distributor and dealer to do in order to market your ware.

A LONG PERIOD OF WONDERFUL OPPORTUNITIES

I notice, furthermore, by referring to your program, that this is your thirty-eighth annual meeting. *Thirty-eight years!* That is just a little bit longer than I have been in the game of selling clay goods, altho it is said I am somewhat of a pioneer. Thirty-eight years is a wonderful record for an organization. It seems to me that it must be the star record of all the clay associations in the country, and from all re-

ports that come to me, this little Illinois association is the most active of any of them.

You have done a great work in the advancement of the clay industry, solving the many problems of manufacture, and the great progress you have made has been recognized in other associations thruout the country. In the scientific analysis and selection of clays for the various lines of manufacture, you have co-operated with the laboratories of the state university, and thus eliminated fruitless efforts with unsuitable clay deposits. You have gone over the difficulties with labor, with equipment, with fuel, and all the other elements which go to make up the manufacture of clay products, and the combined ideas of the members of this association have been used in keeping the quality of the material uniform, and keeping the cost of manufacture at a minimum. Such a work as this is not only good, sound business from the manufacturers' standpoint, but it is most certainly a public service, because, of course, it is necessarily true that a waste of material must ultimately be paid for by the public at large, and also the public must pay for the losses incident to poor quality of production.

DISTRIBUTION THE MOST PERPLEXING PROBLEM

But, gentlemen, after every possible difficulty of manufacture has been mastered, there is still one more problem that is, perhaps, more perplexing than any other—you must market your product. What value is all the pains that you have taken in perfecting your product if the man who is going to build a house, or drain his farm, does not know what you have or what you have done to supply him with the most lasting material in the world, with the only permanent, the only fireproof material obtainable? The dealer faces this as his very first problem.

The information regarding burned clay products is so thoroly in the minds of all of you that you have no idea in the world how little people know about it. Without any kind of organized educational movement on foot, the general public has been getting sporadically, and by surreptitious methods, some of the facts that you cherish as your own possessions. It is all very well for you to know them, but the public must also know them if you want to keep the smoke coming out of your kilns.

The public is being told, as soon as a new job is to be started anywhere, that there is such a thing as clay products by two or three competitors who go to the job and begin to slash one another. After these competitors have gotten thru with the builder the impression is left that the clay industry is full of defects, errors and misconceptions, because, with the competitive methods now in existence, the attention of the buyer is being called to *the defects of the other man's material*, intentionally or unintentionally, by the salesmen.

PROMOTION OF BURNED CLAY A CRYING NEED

Gentlemen, you must awaken to the realization that something must be done to boost burned clay until it heads the list, and afterwards to keep it there. The underproduction the past year, due to the scarcity of labor, coal and so forth, has helped to keep the output about balanced with the demand, and in some cases, even short of it, but this condition will not exist indefinitely. *Right now, the foundation should be laid for the big work we have ahead of us.*

Undoubtedly, during the early existence of this association, the amount of clay products produced was easily consumed by the natural demand, and that, perhaps, accounts for the lethargy exhibited by some members of the present generation. *However, business no longer is the comfortable, happy-go-lucky occupation it once was.* It no longer comes to you without an effort on your part. Conditions are different from what they were in our fathers' time, and we need a new philosophy to cope with them. We cannot succeed where the old idea of "everyone for himself" is the guiding principle. A broader view and a sharing of responsibilities are necessary, nowadays, and your association has done a great deal to further this feeling.

DEALER PROBLEM NEEDS ATTENTION

Now you must take up the dealers' problem in earnest. By solving his problem you will benefit yourselves to a greater extent than you will the dealer. You must *create* a demand for your products. *Go out of your way, dig down into your pockets, if necessary—the public pays for it eventually—but start something to create a constantly growing demand.* Start an educational campaign. Put the information about burned clay goods you now have, and which has been collected at great expense, within the reach of everyone that may be interested. Individually, you may be doing something in this direction, but without co-operation it will not have the desired effect, which is permanency. The members of the cement industry, the cypress lumber industry, and many other building material industries are as one in the carrying on of a general educational campaign, and they haven't half as much to say about their material as we have regarding the wonderful possibilities of burned clay in building construction of all kinds. We have the biggest thing of them all, still we allow them to crowd us back onto a narrow, limited field where it is not possible for us to exist.

As I look around me and see all of us crowded together in that tiny space, and then look out over the vast fields beyond our boundary, with their unlimited opportunities shut to us, then is when I get that funny feeling.

EVIDENT LACK OF HARMONY AND CO-OPERATION

Now, gentlemen, this condition is purely due to a lack of co-operation—a lack of harmony—and both of these are due to a lack of a proper understanding among us. But how can we understand one another when we seldom, if ever, get together to discuss the one thing in which we are all of us interested? The manufacturers have their association and exclude all who are not actually manufacturers. They meet and probably discuss every phase of the selling problem, but the dealers or distributors who do the selling are not invited. Their assistance is not solicited, except in the case of the American Face Brick Association and the Face Brick Dealers Association. How can the seller do justice to your product if you do not take him into your confidence? You should welcome any one interested in the selling of clay goods to your councils. Make them feel they are wanted, and instruct them, so that they, in turn, can help to educate the builders and general public. What does the average architect and builder know about the advantages of our material? Very little. What does the layman know? *Absolutely nothing.* Educate all of them and you will benefit from increased orders, and, with the increase in demand, prices will adjust themselves. Cut-throat methods will disappear, and with a co-operative feeling between the dealers, the same spirit will exist between salesmen and builder.

MANUFACTURER SHOULD START PROMOTION

Now, you will say I am putting all the blame on you. Well, in a way I am, but I can hardly place it elsewhere. Anything in the way of an educational campaign must originate with the manufacturers. Everything must have its inception with you, as we are but your voice. We will lend you every assistance within our power, but we look to you to instruct us.

There is so much to be done that I feel as tho I could talk from now until doomsday and not cover it all. But I am in dead earnest when I say we must, every last one of us, manufacturers, distributors, dealers and all, put our shoulders to the wheel and rectify the state of affairs that

now exists. We must have the fields that are closed to us opened. Our goods must go in where they rightfully belong.

BUILDING CODE WORK SADLY NEGLECTED

What about our building codes? From all I can learn, in some of our biggest towns they are in a deplorable condition, as far as admitting our goods is concerned. I am ashamed to say that in Chicago, a city that should use as much clay products as the whole state of Illinois, almost, the building code is practically closed to us. And the only cause I can give for this condition is lack of the two things I have already mentioned—co-operation and harmony.

I could give another instance of the lack of publicity covering our material as the cause for a new competitive material, which has just recently been put on the market, going in buildings in alarming quantities. It is so far inferior, for the particular purpose, to the clay material which it is displacing that it is not comparable, and still, because the producers of this material have taken the trouble to make themselves known and because we have done nothing to keep our goods where they belong, they are taking away hundreds of tons every day from your output. Unless we stop this invasion at once, our field in another year's time will be still more limited than it is today.

DEALERS ANXIOUS TO DO THEIR SHARE

The dealers can do a great deal for you in your educational campaign if you will just give us an opportunity to help you. We are willing and anxious to do our share. We need you as much as you need us. Let us make it one big family, all working for a single purpose, to place burned clay goods where they rightfully belong—at the very summit.

We must strive until every human being has been told that clay once burned cannot burn again; until they know that, truthfully, ours is the only permanent material; until we have caused the first thought in the mind of every man who has anything whatsoever to build, to be this—what can I get in burned clay for my purpose?

The sentiments I have expressed to you today I am confident are the sentiments of the bigger share of the people interested in this industry, and I earnestly hope the day is not far distant when I will see something done along the lines I have mentioned. Every clay products manufacturer in the country is with you. They must be. It only lacks the somebody to start it, somebody with the brains and the backbone for a big undertaking, for such it is, to go in and correct the wrong impressions that have been made for years and years back, and that somebody is this little Illinois association. You have the members with the broadness and ability to do things worth while, and it is my wish, and I am sure, that of every dealer in the state, to see our Illinois association inaugurate the publicity campaign necessary to boost burned clay.

ENTRIES TRIPLED *in* STUDENTS' CONTEST

CLOSE TO THREE TIMES as many contestants have registered for "Brick and Clay Record's" Second Ceramic Students Essay Contest as took part in the first competition, according to returns which were compiled immediately following the last day upon which registrations were acceptable—namely, January 15th, 1917.

This fact alone would indicate the eagerness with which the announcement of this contest has been received, as well as the appreciation on the part of the ceramic students of the country of the prize that is being offered. Further than this, however, letters are being received from individuals which go to show that the motives of the contest are meeting with favor in ceramic circles, these being the promotion of the production of more ceramic literature, based upon accurate knowledge and experiment.

It is fitting that some further detail be given those who will take part in the contest, concerning the nature of their subject and the way in which it should be put on paper.

In the first place, it should be thoroly understood that a subject of interest to clayworkers should be chosen by the contestant, as this point will be given considerable prominence in the grading of the papers. Professor Orton, who was the judge of the last contest, gave the timeliness of the subject chosen great consideration. In the last analysis of this point, however, the student has a very wide range of subjects from which to choose.

The use of correct English in the writing of these papers is, of course, a foregone conclusion, as this was one of the main points which Professor Orton considered in grading the papers for the first contest, and altho it may seem superfluous to warn the contestant regarding the observance of common grammatical and rhetorical rules, the violation of these in the first contest worked to the detriment of some of those who took part. Neatness may well be considered in connection with the use of proper English, as this also will be given consideration in the grading of the papers. Wherever possible, the student should have his paper typewritten, as this will make it easier to read, resulting in a pleasing effect upon the judge or committee of judges. There is a psychological effect in the presentation of a neat and easily read manuscript. It is hardly necessary to go into this phase of the subject, it being our desire to simply call the student's attention to this important point. The method of handling the subject under discussion or the treatment of the topic should also be given considerable thought, inasmuch as a paper which is presented in a clear and logical manner, with no gaps in the chain of reasoning, will receive better treatment at the hands of the judges than one in which the argument or explanation is involved and hard to understand.

In closing, it is no more than fair to inform those who have registered their desire to take part in this contest, particularly those who took part in the first contest, that every contestant will have to work harder in the second essay contest, as a larger number of schools is represented than in the first competition. This fact has been most gratifying, especially the registration of representatives from the five schools or universities of the country which carry ceramic departments, namely, Ohio State University, University of Illinois, Iowa State College, New York State School of Clay Working and Ceramics, and Rutgers College. But the prize—a complete set of the Transactions of the American Ceramic Society—is well worth the putting forth of an additional effort, as it is something that will be useful to the ceramist as long as he pursues his chosen occupation.

* * *

A meeting of the Ohio Paving Brick Manufacturers' Association is scheduled to be held at the offices of the organization in the Hartman building, Columbus, February 2nd. Much important work is to come before the meeting, including the budget for the coming year. James R. Marker, commissioner of the association, reports its work in excellent shape.

IOWANS HOLD BIG MEETING

Record-breaking Attendance, Excellent Program and Progressive Spirit of the Members Mark "Hawkeye" Convention Held at Iowa State College, Ames

WITH A PROGRAM that would have done justice to any national convention, and an attendance far in excess of those usually pulled by state conventions, the Iowa Clay Products Manufacturers' Association and the Permanent Buildings Society convened on January 16th to 20th, at the Iowa State College, Ames, Iowa. In all, about seventy of the most progressive manufacturers of burned clay products thruout the state were present at the meetings. Unlike conditions existing in many of the other state associations, a noteworthy feature of the gathering was that the reins were held and the progress of the convention directed by the most influential and active men in the state industry. Either as officers, or enthusiastic members, those who control the bulk of Iowa's production, as well as those who operate plants with much smaller capacities, were there to see that things kept moving. And they surely did.

Possibly no better indication of the health enjoyed by an association could be had than that very feature and the "big men" of Iowa who were not to be seen in the audience of interested men could be counted on the fingers of one hand, figuratively speaking.

MUCH CREDIT IS DUE TO IOWA STATE COLLEGE

Undoubtedly, a great amount of credit for the excellent program belongs to the Iowa State College, whose generous appropriation made it possible to bring many of the "star performers" from distant points to address the organization on subjects of great interest to the clayworkers of the state, and also to the energetic secretary of the association, Professor Homer F. Staley, director of the Ceramic Department at the Iowa State College.

Two of the state's bodies of clayworkers held their annual meeting at the time above mentioned. The Permanent Buildings Society held its meeting at 10 A. M. on Tuesday, and offered conclusive evidence that some very concrete results were being obtained thru the organized promotion of burned clay products, especially for use on the farm. Many bulletins have already been published by the society and several more are soon to be placed upon the presses. Matt King, secretary of the society and the man to whom the wreath of glory belongs for the success of the organization, reported that a draftsman was being employed to make sets of plans for farm buildings, the blue prints of which will be distributed thruout the state at a slight cost. Several new supporting members were then taken into the fold of one of the most progressive of clay's organizations.

STATE ASSOCIATION ELECTS OFFICERS

Following the meeting of the Permanent Buildings Society, the Iowa Clay Products Manufacturers' Association held its business meeting, at which it elected J. W. Goodwin of Des Moines to serve as its chief for the coming year; H. S. Vincent of Fort Dodge, vice-president; Homer F. Staley of the Iowa State College at Ames, secretary, and C. B. Platt of Van Meter, treasurer.

COLLEGE GIVES MANUFACTURERS WARM WELCOME

Starting off the unusually good program of lectures on Tuesday afternoon, Raymond A. Pearson, president of the Iowa State College, gave the delegates a hearty welcome, assuring them that it was the desire of the college to be of assistance in the development of the industry, which was of a special importance in the Hawkeye state because of the scarcity of lumber. The response to the warm welcome was made by J. W. Goodwin of Des Moines, acting as president in the absence of B. C. Kecler, who was unable to attend, and in his talk he thanked the college for the great help it is giving to the association. Following Mr. Goodwin, Professor A. V. Bleininger of the U. S. Bureau of Standards, Pittsburgh, Pa., read a paper on "Plasticity and its Measurement," in which he showed the relation of shrinkage to plasticity and the effect of salt on this important clay property. Following this, Matt King, secretary of the Permanent Buildings Society, Des Moines, addressed the association on "Co-operative Work Among Iowa Clay Products Manufacturers," in which he explained the work of his organization and showed the large increase in the amount of burned clay building materials used on Iowa's farms as a result of its work.

PROFESSOR STALEY SOLVES DRYING PROBLEMS

Professor Staley then gave an intensely interesting and instructive talk on "How to Make a Dryer Dry," in which he emphasized the importance of feeding and emptying progressive dryers at a uniform rate, day and night. The point of Professor Staley's address was that, ordinarily, with the fourteen-tunnel dryer, five cars are drawn in the morning, two more groups of three cars each during the day and three more cars about the middle of the night. While with this system all the cars would have been in the dryer for the same length of time, the variation in the number of cars drawn and in the intervals between the draws causes each of the four groups to have had a different treatment in the dryer. One of these treatments may be correct, but in this case, the other three must be wrong. To correct this, three cars should be drawn at each stage and the intervals between draws should be the same. By the application of this principle of feeding and drawing dryer cars, increases in dryer capacity of from fifteen to twenty per cent. have been obtained. In one case, such an increase made unnecessary a proposed investment of $40,000 for an addition to the dryer being used.

Another very interesting paper on dryers was then read by I. M. Justice of Dayton, Ohio, whose subject was "Radiated Heat and Waste Heat Dryers." This concluded the first day's program of lectures.

STUDENT SECTION OF A. C. S. INSTALLED

In the evening the men in a body attended the installation of the Ames Student Section of the American Ceramic Society, over which A. V. Bleininger presided. The history of the society was recalled in an interesting manner by Mr. Bleininger. Following this, J. W. Goodwin delivered a talk to the students that emphasized the importance of the work which they were doing and sketched the part that they were to play in the development of the industry. B. T. Sweely, winner of "Brick and Clay Record's" first Ceramic Students' Essay Contest, was elected chairman of the Ames Student Section and Professor Staley was made counselor. Following the installation of the Ames Section, the body journeyed

to a local "movie" theatre, where they watched a six reel film, showing the manufacture and uses of burned clay products.

The following day's schedule was opened by Arthur E. Williams of the U. S. Bureau of Standards, Pittsburgh, Pa., who read a paper on "Modern Methods of Clay Testing," showing the methods used by the Bureau of Standards in testing clay products. Frank Armstrong, who handles the advertising of the Permanent Buildings Society, followed with a very instructive address on "Reaching the Small Customer." With "Specifications for Brick" as his subject, Professor Bleininger then showed that this material is entirely without a legal standing and outlined the work now being done by the American Society for Testing Materials in connection with setting a standard for brick.

EFFICIENCY ENGINEERING AND COSTS DISCUSSED

During the noon recess, a number of those attending the convention, who were former students at the Ohio State College, were guests at a luncheon given in their honor by the Ohio State Club of the Iowa State College. The afternoon's program was started by Dwight T. Farnham, the author of the many valuable articles on scientific management that have appeared in recent issues of "Brick and Clay Record," who read a paper on "The High Cost of Ignorance." Following this, what was possibly one of the most valuable papers presented at the convention was read by E. A. Hultz, secretary of the North Iowa Brick and Tile Company, Mason City, Iowa, on "Why Clay Plants Lose Money." Mr. Hultz's paper was primarily a plea for cost accounting but was strengthened immeasurably by records of costs actually obtained on his plant. W. C. Robinson, vice-president of the Underwriters' Laboratories at Chicago, followed Mr. Hultz with a talk on "Fireproof Qualities of Clay Products," which closed the program of lectures scheduled for the second day.

ANNUAL SMOKER PROVES BIG EVENT

The smoker held at Hotel Sheldon-Munn, Ames' new and splendidly furnished hostelry, on Wednesday evening was an occasion that will not soon be forgotten by those who attended. After enjoying a sumptuous feed, the delegates were entertained during the early part of the evening by many witty stories and funny experiences told by fellow members. From the banquet hall they sojourned to a local "jitney" opera house, which had been chartered for the occasion, and where they were entertained by a few pictures fitting the occasion and a bit of cabaret performance.

The morning of the last day of the convention, Thursday, January 18th, was taken up for the most part by papers read by manufacturers of equipment used on clay plants. D. D. Deeds of Lorain, Ohio, and Arthur F. King of Marion, Ohio, treated the subject of the steam and electric shovel as used in digging and moving clay, while I. E. Burkett of Macon, Ga., gave some interesting facts and figures regarding dragline excavators. Three papers dealing with the use of pyrometers in burning clay were then read by R. W. Newcomb of New York City, I. W. Lazear of Chicago, and C. B. Thwing of Philadelphia.

PRODUCER GAS A SUBJECT OF MUCH INTEREST

After the noon recess, W. D. Richardson of Columbus, Ohio, read a very interesting paper on the important subject of "Producer Gas and the Continuous Kiln," which was followed by a paper from I. M. Justice of Dayton, Ohio, on "Producer Gas for Periodic Kilns." Both of these papers were received with a great amount of attention by the men present, since they dealt with one of the most important questions of the day in the manufacture of burned clay wares.

PAPERS ON BURNING CLOSE EVENTFUL MEETING

Dwight T. Farnham was next on the program with a discourse on "Some Burning Experiences." The closing paper of the convention; and one of the most interesting and instructive read during the three days' sessions, was that on "Control of Kilns During Burning," by Arthur E. Williams of the U. S. Bureau of Standards. Mr. Williams' paper gave some very enlightening information on the subject of burning, the proper use of a draft-gauge, controlling settle, and determining the color of the ware burned by the proper use of the draft and settle gauges.

Despite the fact that Mr. Williams' paper was the last one read at the convention and was scheduled late in the afternoon, more than forty of the delegates were present to hear it. It closed what was, undoubtedly, one of the most successful and constructive conventions ever held by any state association.

Good Program for Wisconsin Meeting

An unusually good program has been lined up for the coming convention of the Wisconsin Clay Manufacturers' Association, to be held at the Republican House, Milwaukee, Wis., on February 1st and 2nd. According to all indications, this, the seventeenth annual meeting of the Badger state organization, will be well attended.

Topics of great interest and value to the manufacturers are scheduled for the meeting, and include papers and discussions on such subjects as "What Standardization of Drain Tile Means to the Manufacturer," by Professor E. R. Jones, "Relative Efficiency of Up-draft and Down-draft Kilns," by J. D. Pratt of Menomonie, "Essential Requirements in the Construction of Kilns and Dryers," by J. O. Trautwein of Chicago, "Use of Producer Gas in Burning Clay Products," by I. M. Justice of Dayton, Ohio, and "Cost Accounting and Methods of Hiring Labor in Wisconsin Brick Yards," by Oscar Wilson of Menomonie.

Business matters of importance will also receive attention at this meeting. A warm invitation is extended by the association to new members to attend these sessions, at which they will receive a hearty welcome.

An Acknowledgement of Kind Remembrances

The new year, with its accompanying change in calendars, brought, as in other years, a generous gift of these handsome wall decorations. We hasten to thank those who were so kind as to remember us in the distribution of these date reminders and to say that they were not received without being appreciated.

While a short description of these gifts would, no doubt, be interesting, a lack of space forbids. It would, however, be most ungracious for us to pass from this subject without mentioning the name of the firm or individual that favored us with a calendar. These are as follows:

Cling Surface Company, Buffalo, N. Y.
George H. Clippert and Brothers, Detroit, Mich.
Clippert-Spaulding and Company, Lansing, Mich.
Freese and Company, Galion, Ohio.
Moberly Paving Brick ompany, Moberly, Mo.
National Aniline and Chemical Company, Buffalo, N. Y.
A. C. Ochs Brick and Tile Company, Springfield, Minn.
Roessler and Hasslacher Chemical Company, N. Y.
Reynoldsville Brick and Tile Company, Reynoldsville, Pa.
Tuttle Brick Company, Middletown, Conn.
C. K. Williams and Company, Easton, Pa.



A Pile of Thirty-six Inch Drain-tile, Seconds, and Thirds, Or, in Fact, a Grade Without a Market—the Result of Ware Badly Laminated in Manufacture

CURING LAMINATION *in* LARGE PIPE *and* TILE

A Summary of Many Years' Experience, Gained in Both United States and Canadian Clay Plants, in Efforts to Eliminate the Costly Slabbing Evil

By Cleve Hartzell

THE PLACE TO BEGIN when endeavoring to cure defects in the manufacture of clay wares is at the origin. This statement may seem superfluous, but the fact remains that many manufacturers have made a total failure of their attempts to solve their problems, owing to the fact that they began at the wrong end.

Lamination is a common evil on paving-brick, sewer-pipe and drain-tile plants. Those having a stubborn clay to work have experienced a considerable loss of time and money endeavoring to eliminate this trouble. Laminated paving-brick will not stand the rattler test; laminated sewer-pipe and drain-tile will not pass successfully thru the watersmoking and the burning.

MUCH CAN BE DONE BEFORE WARE REACHES KILN

Some authorities on the subject declare that slabbing—which is the result of lamination—is done in the burning, and there alone. The writer held this same view until convinced otherwise, and after much study and experimenting along different lines of manufacture, was astonished to note the remarkable difference which certain changes in the earlier stages of manufacture made in the quality of the ware as it came from the kilns. In other words, the writer learned that considerable could be done in handling the ware before it reached the kilns to overcome the costly defects of lamination or slabbing.

The writer has heard much discussion on the slabbing of sewer-pipe and drain-tile but seldom has heard the explanation that this was due to lamination. Unquestionably, slabbing is done in the dehydration period and it usually occurs between the temperatures of 600 and 800 degrees Fahrenheit. It is true that steam and gases start to generate and form in the weakest points of the clay body after the kiln heat reaches 212 degrees Fahrenheit, but the most damage is done during that period from 600 to 800 degrees. However, some slabs do not give way and come off until after the glazing and when the kiln is under cooling conditions. This is explained by the fact that most of the slabbed places do not take the glaze. It is my experience that these weak places result from defects in the manufacture, as will be explained later. Some clays laminate and slab very easily, and for this reason, great care should be taken in the preparation of the clay and the molding of the ware so that when the product reaches the kilns it is in as perfect a condition as is possible. When this condition obtains then the burner can bring the ware thru the kilns with safety and with little loss under ordinary conditions.

PROPER MIXTURES OF CLAY

Starting at the clay pit, which is the foundation for the manufacture of all ware, it is found that different strata of shale or clay vary in their behavior under working conditions and while being formed into the different shapes desired. Therefore, it is not advisable to work all clays in the same manner. These, however, can be worked along similar lines, especially in the mixing. Most clays require one, two or even three mixtures to obtain good results. Shales and fire-clays work well with a mixture of good top loam or sand

rock, and near many plants are to be found an abundance of common clay which, while it does not seem to be of very much value in many instances, can be worked very successfully with shales or clays, reducing the cost of raw



Twenty-four Inch Sewer-pipe and Drain-tile Set and Burned Identically the Same, and in the Same Kiln. The Tile Slabbed, But the Pipe Did Not

material and adding strength and durability to the finished product. Experiments, however, must be made in order to find the mixture that meets the requirements of the manufacturer's particular line of ware. Furthermore, these mixtures must be made before the raw material reaches the dry-pan.

Concerning the matter of fine or coarse grinding and screening, this must be done to suit the clay and different wares it is desired to make. Finely ground clay is preferable in all small wares as it makes a smooth surface and takes an excellent salt glaze. However, with rich or plastic clays fine grinding has its faults, as will be observed under the discussion of the tempering of clays in this article. Coarse grinding is advisable for large wares in several ways, namely, it is possible to obtain a greater capacity of ground clay from the dry-pan and the coarser ground material helps in the structure of the thick body found in large wares. The change over from coarse to fine screening, or vice versa, can be accomplished by using an auxiliary screen and elevator, this change being made in a few minutes. When using finely ground clay in large wares a generous amount of coarse grog must be used but the amount of this material can be reduced when using coarsely ground clay.

TEMPERING AN IMPORTANT FACTOR

Clays must be well and evenly tempered and the only way to maintain a high standard of work in this important part of the manufacture of the ware is to have one man in charge of tempering, for there are no two men that can temper exactly the same. Where wet-pans are used in the sewer-pipe factory, and most sewer-pipe factories use this machine, it is well to have an extra man or men to dip out the clay regardless of whether your battery of pans consists of two or more than that number. Do not allow the man in charge of the pans to crowd them nor to send the clay that is not well pugged to the press. If you are using plows to get the clay out of the pans and must run the clay stiff in order that the plows will work well, this is a point where you should make a change and go back to the shovel or paddle dipper.

Many of the culls that come from the kilns can be traced to the wet-pans or the pugmill. Blisters, crooked and slabbed ware are the result of improper pugging, whether it is done in the wet-pan or the pugmill. The sprinkling of water on clay and then sending it to the press without its being pugged well causes blisters that may not show up very prominently until the ware is burned. Soft and stiff clay in the same pan or a different temper in each pan causes crooked pipe or tile. Stiff clay is the cause of lamination.

In tempering finely ground clay the man in charge of the pans or the mill must be cautious about the way in which he uses water. It is best to get the water in the mixture as soon as possible and let it mill to the right temper.

Many blisters originate from improper milling of fine clay As previously mentioned, a generous amount of coarse grog is a wonderful tonic in many ways. It takes up the shrinkage, makes a thick clay body porous, taking up the air present in the clay cylinder and the gases in burning and not leaving spots in the ware to cause slabs or blisters. The use of grog with finely ground clay also prevents a differential flow while the clay is passing thru the die, or the splitting and slipping of the clay column.

POINTS TO BE WATCHED IN THE MOLDING

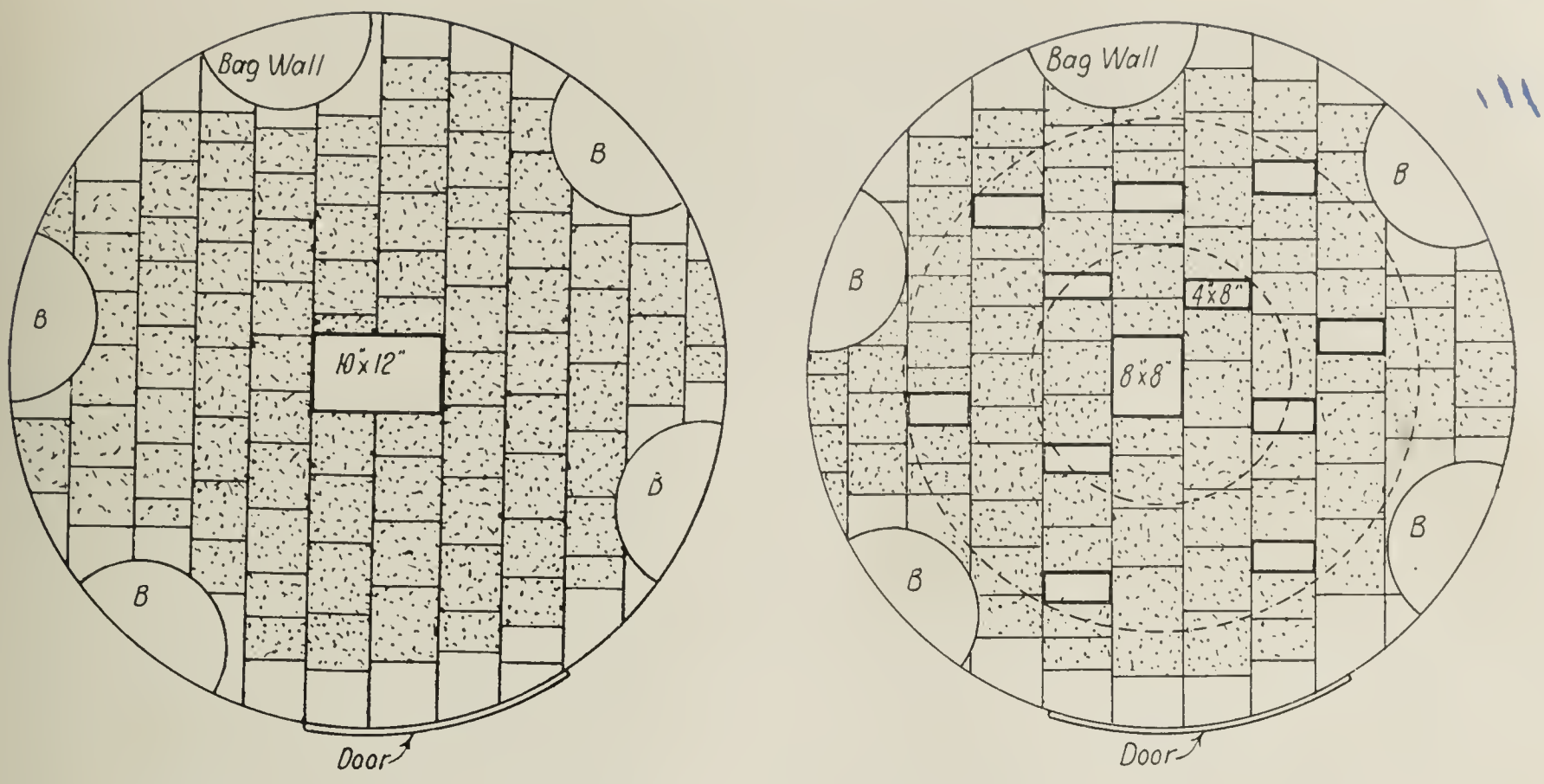
In the molding of sewer-pipe or large drain-tile it is good policy to keep the cylinder of the press filled with clay and not run it empty each time before filling. The first mentioned practice tends to unite the particles of clay better than in the latter and also avoids much of the air that might otherwise get among the clay as is the case with an empty cylinder. This air is sure to keep the clay from knitting together well. The writer has seen several devices to let air out of the clay cylinder but none have proved successful,



A Rick of Perfect Thirty-six Inch Tile, the Result of Proper Manufacture and Burning. This Ware Is Free from Careless Defects and Is of High Quality, for Which There Is Always a Market

to his knowledge. Clay for large tile or pipe should be run thru the press just as soft as the pugging or handling of same will permit without bulging.

Great care should be taken in the attaching of large dies



IMPROPER AND PROPER CONSTRUCTION OF KILN FLOORS FOR BURNING LARGE PIPE AND TILE

The Drawing on the Left Illustrates Improper Construction of Down-draft Kiln Floor. Note Large Hole In Center and Holes at All Sides of the Kiln. This Bottom Does Not Give Equal Draft, as Can Be Readily Seen. On the Right Is Shown the Proper Construction of Kiln Floor. Note Holes Thruout the Floor, Giving Equal Draft

to the press. Attention should be particularly given to see that the core and outer piece of the die are parallel. This is essential, as, if the core is too high or too low, it may cause the clay to travel faster on one side than on the other. If the core is too high this can be remedied by putting a large washer on the press stem above the core. If the core is too low, its top can be machined slightly to produce the desired level. The friction in the die, both inside and out, must be the same. If this condition does not exist the ware is sure to be badly laminated and some slabs can be expected to develop in the watersmoking period. If you have one size tile or pipe that slabs worse in the kilns than the other sizes, it is a certainty that there is something wrong with the die. By referring to the blue-print which you undoubtedly have of your press, and comparing it with the existing adjustment of the die, you can readily see if the die has equal choke or friction. If not, some means of adjusting the choke must be tried out as some dies hang perpendicular to the clay cylinder, forming a heavy choke on the inside but none on the outside, or vice versa, both causing a differential flow of the clay body. Plastic or sticky clays are affected worse than sandy clays or those that offer less resistance to the molding machinery.

The length and finish of dies play an important part in the manufacture of large ware with thick hulls. Die manufacturers are equipped and are willing to make any design best suited for your clay, so it is up to you to get what you want.

TILE SLAB MORE EASILY THAN PIPE

Sewer-pipe do not slab as easily as drain-tile. The writer once had a kiln set with a mixture of twenty-four-inch sewer-pipe and the same size drain-tile. When the kiln was dawn there were a number of pieces of slabbed drain-tile but the sewer-pipe was O. K., as is shown in one of the accompanying illustrations. The only marked difference in manufacture of each kind of ware was that the clay was run softer for pipe in order to form a good bell end. It is evident that soft, plastic clay pressed solid in the clay cylinder, which occurs in the forming of the socket of the pipe, knits together more firmly, eliminating lamination in ware burned under the same conditions and in the same kiln as that which was not so treated and which came out slabbed. Is not this logical?

THE DRYING OF LARGE WARES

Many plants have considerable trouble in drying large pieces of ware. The writer has found that most of these difficulties can be overcome by simple methods. This, however, is beyond the subject under discussion. The writer has



Haste Makes Waste. This Is Not An Unusual Scene Near Almost Any Clay Plant, and It May Be Added that from 80 to 90 Per Cent. of This Waste Is Caused By Haste In Manufacture or Handling

seen badly laminated drain-tile slab even in the drying thru excessive heat or the sun's rays shining thru the windows of the building containing the drying floors, drying the outside surface of the tile too fast, with the result that thin slabs fell off the ware. You can readily imagine what would happen to this kind of ware in the burning.

Better results can be expected of the burner if the ware which has to be handled is thoroly dried before reaching the kilns. Of course, this is a difficult goal to attain at all times, but the burner has many more opportunities to produce a good burn with ware set dry, as he has less moisture to contend with in the watersmoking. However, the writer has seen green ware set and the kiln, when empty, produced just as good ware as those which had been set with a product that had been thoroly dried. Of course, the burner in this case had to be more careful in the watersmoking. With a proper drying system there should be no difficulty in keeping plenty of dry ware on hand for the kilns.

BURNING IS OF VITAL CONSIDERATION

While the writer is of the opinion that care taken in the preparation of the clay body and in the molding of the ware has much to do with the quality of the finished product, yet it must be considered that the burning is a factor of vital importance. In order to obtain good, even burns, the kilns must be properly constructed and kept in repair at all times. Equal draft, cleanliness of kiln floors and properly built bag or pocket walls have much to do with the cutting down of kiln losses.

Attention is called to the two drawings which appear in these columns, showing the proper and improper construction of kiln floors. The drawing showing the additional draft holes leading to small tunnels which in turn lead direct to the main flue, illustrates an excellent bottom for an equal distribution of heat in the watersmoking and during the salt glazing.

Poor bag walls are sure to produce fire cracks, blisters and slabs. The bag walls should be built above the fire-box arches with flash brick on top and erected of circle or wedge brick. The outside of these walls should be plastered with a mixture of clay and sand.

There should be a repair crew on the job to keep the kilns in good shape and the floors cleaned at all times. This must be done to obtain good, even burns.

When all of these points have been taken care of, then the responsibility for the production of No. 1 ware rests on the burner. Careless burning or cooling will result in very heavy losses in the kilns. With the writer's suggestions contained herein, and with the several good articles on burning which have appeared in past issues of "Brick and Clay Record," the average burner should find no difficulty with lamination and should reduce slabbing to a minimum, if these suggestions are followed.

EXPERIMENTS

Experiments must be made in order to determine what are the best working conditions of various clays in different localities, and after learning the proper mixture to use and the best methods to follow for the manufacture of your particular ware, stick to them as long as you are getting satisfactory results. When experimenting with ware always mark or stamp it so as to be sure that the results can be studied intelligently when the ware comes from the kiln. Try one experiment at a time, making just enough ware to give your idea a good test. In this connection, a small test kiln is a good investment for any clay plant to make.

Owing to the rising cost of producing clay wares and the close competition between manufacturers that now exists, most clayworkers are compelled to crowd their plants to the highest capacity, and for this reason, many small points are often overlooked, but these small items amount to considerable at the end of a year. It is with the hope of calling attention to these seemingly insignificant but very important facts, that this article is written. May it help fellow clayworkers to solve some problems that have been a serious menace to the success of the industry for many years. With co-operation and the exchange of ideas, such as are advanced in this brief paper, the industry can and will attain a higher standard scientifically.

ENTHUSIASM MARKS CANADIAN CONVENTION

THE "BEST YET" describes the Hamilton (Ont.) convention of the Canadian National Clay Products Association which has just been brought to a close. The manufacturers in and around Hamilton co-operated in making the 1917 annual gathering from January 23rd to 25th inclusive, a memorable occasion. There were nearly one hundred in attendance all during the convention, with the exception, perhaps, of the banquet and other evening meetings, the daylight sessions being largely occupied with very interesting papers and discussions.

The convention was opened on Tuesday morning, January 23rd, with a welcome to the delegates from Mayor Charles G. Booker of Hamilton, this being followed by a welcome on behalf of the Hamilton entertainment committee, extended by Ryland H. New, Chairman, as well as Inspector C. A. Miller and Wm. Burgess.

ASSOCIATION'S PROGRESS GRATIFYING

President J. E. Frid then delivered his annual address in which he reviewed the work of the association in 1916—a period during which very gratifying progress has been made by the organization. New members of influence, who were previously outside the fold, have joined the association, and it is giving consideration to problems met in the manufacture of china and other pottery products with a view toward assisting those companies making such ware. The association is working along much broader lines than ever before and is adopting a policy that will certainly spell success.

The report of the secretary-treasurer, Gordon Keith, showed the association's finances to be in a healthy condition.

A. F. Greaves-Walker, assistant general manager of the Sun Brick Company, Ltd., Toronto, reporting for the technical education committee, stated that the kiln at the Toronto Technical School, which was to be erected at the expense of the association for use by the students enrolled at this school, has been completed but that the machine room would probably not be operated until after the close of the war. In connection with the recommendations made to the city architect of Toronto for the new building by-laws, Mr. Greaves-Walker reported a number of compressive strengths which had been recommended. These will appear in full in a succeeding issue.

GREAVES-WALKER ELECTED PRESIDENT

The following executive committee was then elected:

Past President—J. E. Frid, Hamilton, Ont.

President—A. F. Greaves-Walker, Sun Brick Company, Ltd., Toronto.

First Vice-president—Thomas Kennedy, Dominion Sewer Pipe Company, Swansea.

Second Vice-president—Wm. Burgess, Don Valley Brick Company, Todmorden.

Third Vice-president—Ryland H. New, Hamilton and Toronto Sewer Pipe Company, Hamilton.

Secretary and Treasurer—Gordon C. Keith, Toronto.

Councillors—C. B. Lewis, Toronto; T. H. Graham, Inglewood; Walter Clark, Corunna; Hubert Desjardins, Montreal; D. A. Lochrie, Toronto; J. S. McCannell, Milton, and C. A. Millar, Toronto.

Auditors—C. B. Lewis and Wm. Burgess.

The matter of selecting the place for the next convention was left with the executive committee, which will decide upon this question.

A special vote of thanks to the Hamilton committee, J. E. Frid and Ryland H. New, for their untiring efforts in making the 1917 convention such a pleasant and successful one, was approved unanimously.



A. F. GREAVES-WALKER,
Newly Elected President of the Canadian National Clay Products Association

MORE COMPLETE ACCOUNT IN NEXT ISSUE

Owing to the incompleteness of the report which is at hand covering this entirely successful convention, which in turn is due to the proximity of the closing of the convention to the publication date of this issue of "Brick and Clay Record," it is not possible to give as full a report as is desired. However, more complete details, and probably one or two of the papers read, will be included in the February 13th issue of this magazine.

Suffice it to say at this time that there was a most remarkable spirit of co-operation exhibited at the meeting, the manufacturers from the smaller towns of Canada being just as enthusiastic as their fellow clayworkers who are operating larger plants.

Western "Pavers" in Annual Get-together

Twenty-six manufacturers and officials of brick plants, members of the Western Paving Brick Manufacturers' Association, attended the annual meeting of that organization at the association's rooms in the Dwight building, Kansas City, Mo., January 19th and 20th. Two dinners were given on the convention evenings at the Hotel Baltimore. Papers were read at the meeting by G. L. McLane, city engineer of Hutchinson, Kan.; James F. McCabe, traveling representative of the Western Paving Brick Manufacturers' Association, and F. C. Aschemeyer, salesmanager of the Hydraulic-Press Brick Company at St. Louis, Mo. The subjects of the papers were respectively: "The Monolithic Road" by G. L. McLane; "The Bright Side of Paving Promotion" by James F. McCabe, and "Salesmanship" by F. C. Aschemeyer.

At the annual election the following were elected to the board of directors:

A. W. Shulthis, president of the Coffeyville Brick and Tile Company, Independence, Kan.

H. J. Huiskamp of the Buffalo (Kan.) Brick Company.

Robert Nesh of the Pittsburg (Kan.) Paving Brick Company.

W. H. Hill of the Murphysboro (Ill.) Paving Brick Company.

W. L. Barr of the Murphysboro (Ill.) Paving Brick Company.

The following officers for the ensuing year were elected: A. W. Shulthis, president; H. J. Huiskamp, vice-president; G. W. Thurston, secretary, and Frans Janssen, treasurer.

Clay Products Company Adopts Bonus System

Hundreds of enthusiastic employes of the Clay Products Company, Brazil, Ind., received with applause the announcement made by the president of that company, H. H. Titsworth, at a banquet given in their honor on January 18th, to the effect, that, starting on January 28th, the company would adopt a bonus system of profit sharing, whereby the sum of $3,375 every four weeks, or $43,775 a year, over and above their salaries, would be placed in their hands, if they could lift the production of the company's plant to eighteen kilns of ware a week—an altogether possible attainment. The plan, perfected after months of preparation, is based upon the production of the company when but twelve kilns were in operation, which amounted to 2,500 tons every four weeks, and makes it easily possible for the workers to increase their wages 33⅓ per cent. With the co-operation of the men the company may be enabled to increase its employes' wages as much as one dollar a day.

Mr. Titsworth's explanation of the system, as made to the men at the banquet, is as follows:

"Formerly the plant had twelve kilns and turned out an average of forty kilns of ware ever four weeks. The plant now has twenty kilns, but we are going to start the bonus basis on what our production was when we had only twelve kilns. The twelve-kiln plant turned out an average of forty kilns of material in a period of four weeks, producing 2,500 tons of ware.

"With the twenty-kiln plant, we are going to pay a bonus on every ton of ware turned out in excess of the 2,500 tons mentioned. After this amount of good ware has been produced, a bonus of fifty cents per ton will be paid on the next five hundred tons; $1.00 a ton on the next five hundred tons; $1.50 a ton for the next two hundred and fifty tons; $2.00 a ton for the next two hundred and fifty tons; $3.00 per ton for the next two hundred and fifty tons, and $4.00 a ton for the next two hundred and fifty tons and for all tonnage in excess of that amount.

"For the last figure mentioned, it will be necessary to turn out seventy-two kilns of good material in a four weeks' period. The total bonus to be distributed on this basis would be $3,375 in a period of four weeks, or $43,775 during the year. An iron-clad rule will be made that a man who is absent from work one day will forfeit twenty-five per cent. of his bonus for the period; if he is absent two days, he will forfeit fifty per cent., and if he is absent three days or more, he will not participate at all in the bonus of that period, and the entire amount will be distributed among the men who have been steadily on the job."

The bonus plan went into effect on January 28th, thus making the first division of profits on February 24th. Mr. Titsworth stated that the offer is for 1917, the bonus, of course, after that time, depending on the market conditions for the company's products.

SPASMODIC EATS AND A SHOW SUPPOSED GREAT!

SERVED AT YOUR SEATS BY THE SPASMODIC EIGHT

HOTEL SHERMAN
JANUARY 24th 1917

THE DINNER PAIL

"Rug Mixture" in Red Color
"Buff Verticle Cut" "Oriental" Pills
"Rainwashed" Poultry
"Art Brick" Fresh from the Kiln
Common Brick in Buff Color
"Greendale Rugs" ala Oleo
"Texkur" & "Chaldean" Mixture
"Monk Bronz" Dressing
"Magadore Verticles"
"Shale Tex" Culls
"Kulage Barks" with "Navajo" Trimmings
Toasted "Moonbeams"
"Coffeyville R E"
"Velvet Naps"

TOOTH

THE ENTERTAINMENT

Lydia Punk-ham } Sisters
Lydia Pork-shank }
Powerful Bullchytzky
Misha Hellman } Brothers
Another With-larger }
Muttinsky } Enemies
Jeffowsky }
The Mystic Monk
Pianissimo Sincopatio
The Irish Cuckoo
Shaking the Chimny

W.L. Rose
T.J. McGuire
R.L. Sickell
A. Schonne
L. Lewis Cohon
Henry M. Thompson
Oscar J. Blattner
W.H. Gifford
L.B. Jackson
E.C. Kimball
C.J. Hill

Musical Director - Elmer Nettenstrom
Poet Laueate - W.P Carney
Director of Cuisine - Harry Podolsky
Master of the Cult - W.H. Gifford
Stage Manager - R.M. Combs

HOSTS

Thomas Moulding Brick Company
Hydraulic Pressed Brick Company
Bonner & Marshall Brick Company
S. S Kimbell Brick Company
Kimbell-Hill Brick Company
Meacham & Wright Brick Company
Wisconsin Lime & Cement Company
Consolidated Company

MENU AND PROGRAM DISTRIBUTED AT THE CHICAGO FACE BRICK ASSOCIATION'S ANNUAL MEETING

The Ideas Which Are Embodied in This Masterpiece of the Artist's Pen Originated in the Fertile Brain of Rogers M. Combs. The Drawings Were Made on Tracing Cloth and Then Blue-printed All on One Sheet, Which, When Folded, Was Productive of An Exceedingly Neat and Attractive Combined Menu and Program

CHICAGO FACE-BRICK MEN FROLIC *at* ANNUAL MEETING

After-dinner Speeches and All Seriousness Tabooed at Get-together of Chicago Face Brick Association Members and Their Salesmen

A RADICAL DEPARTURE from the usual method of conducting annual meetings of clayworking organizations was inaugurated by the Chicago Face Brick Association—the livest of all brick clubs—on the evening of January 24th, at the Hotel Sherman in the "I Will" city. The usual after-dinner speeches were supplanted by "stunts" and the serious consideration of business gave way to laughter-producing jibes and quips which came as much from the audience as from the various performers who made up the program that followed the banquet.

A few weeks previous, at a meeting of the association, a committee consisting of four of the members, had been appointed to take the planning of the affair in hand, with the sole instructions that the purpose of the meeting was to show the salesmen employed by the members of the organization that their competitors were not pirates, cut-throats and thieves, as usually pictured, but human beings with the same characteristics as themselves. That this committee did its work well is evidenced by a better feeling created among the face-brick salesmen operating in and about Chicago as a result of the gathering.

GUESTS IN SUSPENSE ON EVE OF FROLIC

Much secrecy surrounded the making of the arrangements for the affair, as well as the planning and preparation of the program. The performers, who were selected from among the face-brick salesmen to entertain those in attendance at the dinner and annual meeting, together with the committee of four, were as tight as clams on information and there was much whispering and secret consultation around the Chamber of Commerce building preceding the big event. Just prior to the meeting the air was filled with dire rumors of what was to take place, which resulted in not a little speculation as to the nature of the feed and the entertainment.

It was, therefore, an expectant and, altho they would not admit it, a somewhat excited crowd that gathered in the Crystal Room of the Hotel Sherman on the evening of January 24th, to sit down to a repast, the menu of which follows:

"Rug Mixture" in Red Color
"Buff Verticle Cut" "Oriental" Pills
"Rainwashed" Poultry

"Art Brick" Fresh from the Kiln
Common Brick in Buff Color
"Greendale Rugs" a la Oleo

"Textur" and "Chaldean" Mixture
"Monk Bronz" Dressing
"Mogadore Verticles" "Shale Tex" Culls
"Kulage Barks" with "Navajo" Trimmings
Toasted "Moonbeams" "Coffeyville R E"
"Velvet Naps"

"ANARCHISTS" TAKE THINGS IN HAND

Owing to the unavoidable absence of L. D. Binyon of the S. S. Kimbell Brick Company, president of the association, the chairmanship of the meeting fell to Charles Bonner of Bonner and Marshall Brick Company. Mr. Bonner reminded those present that this was the annual meeting of the Chicago Face Brick Association and expressed the pleasure of the members at being able to entertain the salesmen at a dinner. He wound up by stating that, inasmuch as the committee of four had fulfilled its mission, he would entertain a motion that it be dismissed. Loud choruses of "No" filled the room which foreboded trouble for their chairman. W. P. Varney, Chicago manager for the Hydraulic-Press Brick Company, who headed the committee of four that planned the dinner and entertainment, was foremost among those who protested against the discharge of the committee, Mr.



This Bunch of Indians, as Varney Would Say, Was Responsible for Most of the Fun and Laughter. With But One Exception They Are All Face-brick Salesmen

Varney finally pulling out a large red rag which he designated as the symbol of anarchy and proceeded to head a movement to oust the chairman, which was done in quick order. "Charlie" Bonner was forced to take a back seat, the control of the meeting passing into the hands of the revolutionists.

After the company had sat down to the meal and was partaking of the soup, Mr. Varney took this opportunity of introducing to the salesmen the various members of the association or executives of the face-brick companies represented. The Moulding brothers were the first to make their official bow and the company, upon being asked what they thought of these two gentlemen, sang the following to the tune of "Ta-Ra-Boom-De-Ay":

Tom and Joe Moulding are foxy guys,
They're onto their jobs and very wise,

Joe says, "See Tom;" Tom, "See Joe,"
But they're both together in getting the dough.
To-Ra-Ra, Get the dough.

Herman Matz, of the S. S. Kimbell Brick Company, Gifford of the Wisconsin Lime and Cement Company, "Charlie" Bonner, "Hoot Mon" Cormack of the Consolidated Company, Combs and Rose of Thomas Moulding, "Crip" Hill and others followed, the introduction being interspersed with a musical expression of the company's opinion.

AN ALL-STAR PERFORMANCE

The remainder of the courses followed with comparative quietness, and after the chairs had been pushed back, the stage manager, known in brick circles as Rogers M. Combs, vice-president and salesmanager of the Thomas Moulding Brick Company, announced the first act of the entertainment, namely, a musical number, by the following:

Misha Hellman, Another, with larger } Brothers { A. Schonne, ...L. Lewis Cohon
assisted by L. B. Jackson at the piano.

After tickling the musical palates of the crowd, this Russion trio gave way to R. L. Sickell, who proceeded to impersonate a "strong man" by lifting a number of heavy looking weights. If the stage hands had not been so unfortunate as to "thump" when the strong man had the weights in the air, he might have gotten away with his act, but as it was, the company soon discovered the straw-filled dumb-bells.

Lydia Punk-ham, Lydia Pork-shank } Sisters { W. L. Rose, ...T. J. McGuire
then gave an exhibition of heavy-footed dancing and staged a snappy repartee at the expense of those in the audience.

Muttinsky, Jeffowsky } Enemies { Henry M. Thompson, ...Oscar J. Blattner
followed with an impersonation of the comic characters which have been made famous by "Bud" Fisher, and so well did these brick men do their stunt that they were heartily applauded as they left the improvised stage.

W. H. Gifford, manager of the brick department of the Wisconsin Lime and Cement Company, in the role of the "Mystic Monk," proceeded to put some of the guests under his "hypnotic spell," conspicuous among these being W. P. Varney, who steadfastly maintained that "Giff's" power was all "bunk." So well had this act been rehearsed that most of those present swallowed the bait, hook, line and all, and went home giving "Giff" credit for another sinister influence to be used in securing attractive orders from desirable prospects.

L. B. Jackson then rendered a "Pianissimo Sincopatio" that was productive of considerable applause. "The Irish Cuckoo" impersonated by E. C. Kimbell, and "Shaking the Chimny" by C. J. Hill and a "dark horse" wound up an evening of fun and laughter.

HOME TALENT MADE UP THE BILL

An interesting feature of the program was that it was unnecessary to "import" any talent, all those taking part being accustomed to selling brick as a part of the day's work. No small credit is due to the committee of four and one assistant that planned the whole affair, of which Elmer Netterstrom was musical director, W. P. Varney, poet laureate, Harry Podolsky, director of cuisine, W. H. Gifford, master of the occult, and R. M. Combs, stage manager. Nor should those who played the host and paid the bill be forgotten. The Thomas Moulding Brick Company, Hydraulic-Pressed Brick Company, Bonner and Marshall Brick Company, Kimbell-Hill Brick Company, Meacham and Wright Brick Company, Wisconsin Lime and Cement Company and the Consolidated Company got at least as much, and probably more, from the evening's fun in the way of a better feeling between the salesmen, than is represented by the value of the money invested in the entertainment.



A Happy-looking Crowd. The Orderly Arrangement of the Guests Was Not So Conspicuous Later In the Evening. However, in This Picture They Have on Their Best Manners, As They Are About to Be Served

GENERAL COURSE *of an* ORDER THRU *a* TERRA COTTA PLANT

A Brief Description of Every Department Visited by a Piece of Ware from the Receipt of the Order to the Shipment of the Material

By Herman A. Plusch, M. S., Cr. E.

Research Engineer, Abrasive Company of Philadelphia, and Consulting Ceramic Chemist and Engineer

IN ORDER TO COMPREHEND more clearly the departments thru which an order passes before being ready for shipment, a ground plan of a terra cotta plant, is shown herewith, so arranged as to effect economy of operation and production.

All material moves forward, from raw supplies to the finished product. The plant is designed on a slight down grade to assist the movement of material in its logical course of operation. All floor spaces are so figured that each department has its proper allotment of space for practical operation in relation to all other departments, that is, the plaster department bears the proper relation to the pressing department, the pressing department to the dryers, and so forth, in the size plant shown herewith.

THE BEGINNING OF AN ORDER

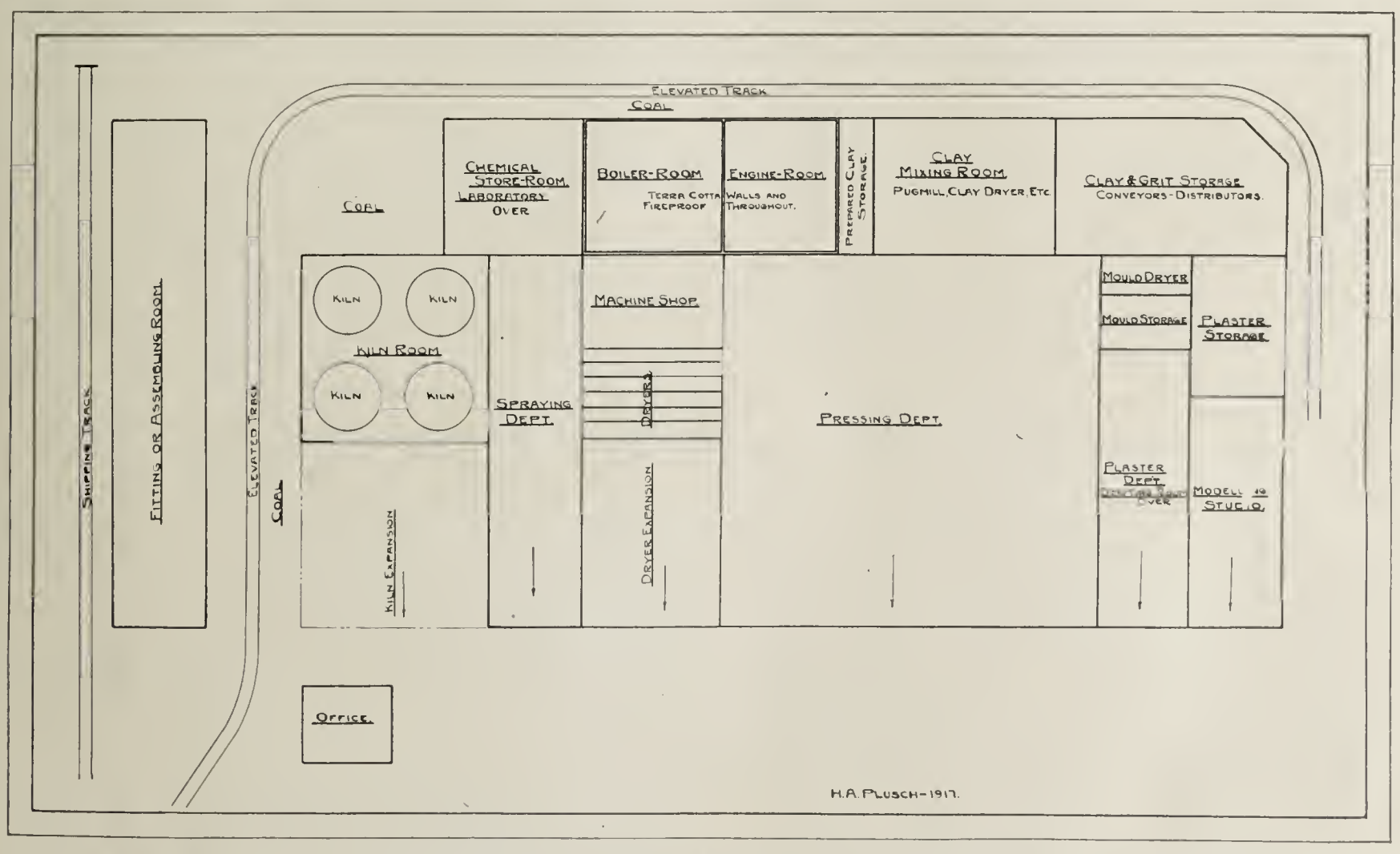
After the usual procedure of sale and signing of contracts, the architect's drawings are forwarded to the drafting room of the terra cotta plant. From these, construction drawings are made, subject in most cases to the architect's approval. Such construction drawings indicate clearly and exactly the location of every piece of terra cotta in the building, its method of anchorage, jointing, whether or not the terra cotta is to be filled with brick or concrete, method of flashing, and so forth.

Sometimes manufacturers of terra cotta have to make slight changes in the architect's original drawings, owing to the limitations of the material with which they are working. These changes are often suggested as the result of experience in the best forms of construction.

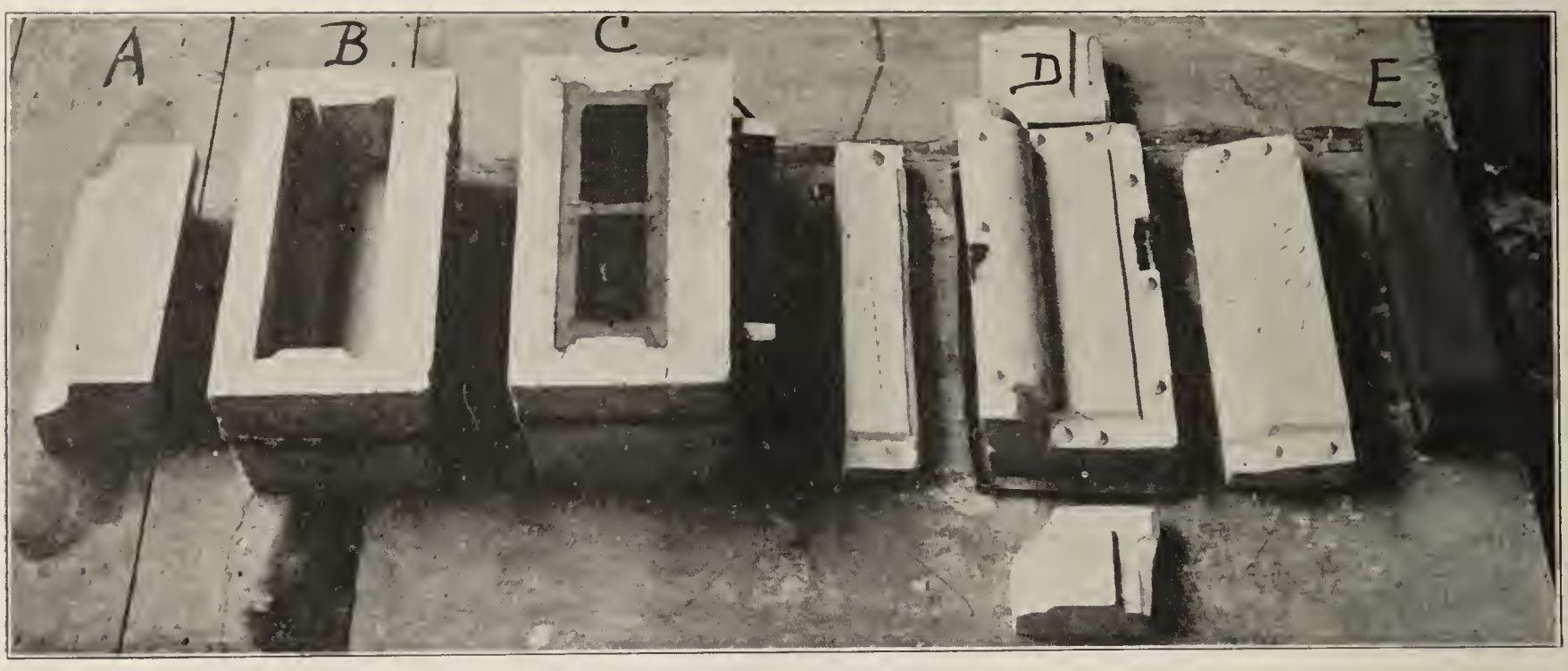
Occasionally, an architect insists on the impossible, such as too large pieces for practical manufacture, and in cases where the manufacturer is forced to do what experience has taught him not to do, the result is generally delay in the building, an irritated architect and a loss to the manufacturer.

THE PART PLAYED BY THE SHRINKAGE RULE

In some cases, architects submit full-size drawings, and in



A Practical Terra Cotta Plant, Economical in Its Working and Admitting of Easy Expansion Without Interference with Regular Operations



THE DIFFERENT PARTS OF A TERRA COTTA MOLD
(A) A Typical Terra Cotta Model; (B) The Mold Made from the Model; (C) The Clay Piece in the Mold; (D) The Component Parts of the Mold, and (E) The Piece of Terra Cotta in the Wet Clay or Green State Just Turned from the Mold; Hence Its Dark Color

others, they require these from the terra cotta manufacturer. When the latter makes the full-size drawing it is made to what is known as shrinkage scale, that is, in order to avoid calculations in the drafting department, if the total drying and burning shrinkage of a piece of terra cotta is two inches in twenty-six inches, then a rule made twenty-six inches long, but so spaced as to show twenty-four inches, would be used. If a piece of terra cotta in the finished state was required to be twenty-four inches long, the shrinkage rule would be used in making the full-sized drawing and this rule would indicate twenty-four inches, whereas, if this shrinkage rule were checked by a standard rule (twelve inches to the foot) it would measure twenty-six inches.

A full-size drawing is made for every different type piece. This is sent to the plaster department where a model is made, again using a shrinkage rule. All geometric pieces are made from plaster models, whereas, if any ornament—not geometric—is called for as much of the model as possible is made in plaster and then it is sent to the modeling department to have the ornament applied. The ornament is built up by using a specially prepared smooth modeling clay or some other modeling preparation. Very often at this stage the architect steps in to criticize the modeling, or he requests photographs of same before the piece, along with the regular geometric pieces, is sent to the molding department, and a mold is taken from it. Where the same piece repeats a number of times in the building, more than one mold is taken in order to facilitate manufacture.

MOLD MAKING AND PRESSING OF THE WARE

The mold being made, it is then dried and sent to the pressing department. Here it is filled with a specially prepared clay, or mixture of clays, containing grog, or previously burned and ground clay. The inside of the mold is coated with the prepared pressing clay to about an inch and a quarter thick, and cross partitions are placed in the piece as a re-enforcement in drying, handling and burning, also to make the piece stronger structurally. The mold used generally consists of five pieces, namely, the face or exposed surface, two ends and two sides, unless in the case of under-cut parts which demand more intricate molds. An illustration showing the different parts of a mold, as well as a model and a green piece of terra cotta, is presented in these columns.

FINISHING TOUCHES MADE BEFORE DRYING

After the piece has been left in the mold until it stiffens sufficiently to support its own weight without crushing or bending out of shape, it is "finished." By this is meant that the seams from the molds are taken off and the whole face of the piece is gone over with a metal, rubber or leather tool, sometimes with a brush and water, depending entirely upon the clay used or the method in vogue at the particular plant. Usually there are marks made on the mold to show where iron anchors or rods are to go into or through the piece, and where these require holes in the finished piece they are cut in while the clay is soft. After the piece is dry enough to lift, it is subjected to some form of drying, and when dry is sent to the spraying department where the final surface color is applied by means of an atomizer.

BURNING THE WARE

After the piece is sprayed, it is sent in a muffle kiln (one in which no flame comes in direct contact with the ware) and fired slowly from five to seven days and at a temperature ranging from 1,100 to 1,270 degrees, depending upon the class of ware or the methods of individual concerns. After cooling for a period, in most cases equal to the time of firing, the terra cotta is drawn from the kiln and sent to the fitting or assembling department where every piece is checked against the construction or setting drawing furnished to the architect and contractor. Each piece is numbered, usually with black paint, to correspond to the drawings. If the piece comes from the kiln a little too large, it is cut to size by the use of a chisel and hammer and then ground square on a rubbing bed. In fact, most of the pieces of terra cotta used on lower stories of buildings have their sides and ends rubbed or ground so as to present perfect joining lines.

TERRA COTTA FINALLY AT REST

After being assembled according to features or stories in the fitting department and each piece properly marked, the terra cotta is packed for shipment, anchored in the building as per construction and setting drawings, and when all set, is washed down with very dilute acid, or better still, with an alkaline abrasive powder.

The next article will deal with terra cotta plaster, the testing of terra cotta clays, and the preparation of the terra cotta body.

* * *

No Ante Bellum Conditions After the War

Members and guests, about fifty in number, of the New Jersey Clay Miners' and Manufacturers' Association assembled in Perth Amboy on January 17th for the annual winter

convention of that organization. No business session was held, the meeting being given over to an inviting banquet and a series of interesting addresses by clay mine operators and others. Abourt forty of these represented nearly every one of the different clay products plants in the Raritan river section, and the clay industry of Mercer county was also represented. At the guests' table were noted the heads of several other industrial plants in Middlesex county.

L. M. McHose, president of the association, was the toastmaster and in his introductory remarks expressed his gratification at the spirit shown by the members, pointing out that the meeting would do much to promote co-operation, good will and goodfellowship in the clay industry in the Raritan river section. Mr. McHose then introduced J. P. Bird, of Plainfield, president of the New Jersey Manufacturers' Association.

In an excellent speech on business conditions, Mr. Bird laid especial stress on what will happen after the war. He said:

"History shows us that when we have had a bulge, when our business has expanded, we have never gone back to conditions before the bulge came. Now, what are we trying to do to meet such a case?

"There exists a condition in this country that has never before existed; a spirit, it might be called. We manufacturers today see only cardinal things but we, as manufacturers, should not forget that we are in a minority, and true, we support a majority. A workman today is being taught that he is only a producer, while you are only manufacturers. But at the same time the workmen are consumers as well as producers and so are the manufacturers.

"I have great sympathy for the man who works. There is growing up in this country an organized movement, an attempt to educate the man who works in the factory who is a producer and a consumer. What are you going to do about it?

"Are yon studying conditions in the workmen's homes as to their manner of living? Not that we are saviors of paternalism, but we should feel interested in the men who work for us and in their home life.

"It does not cost much to know the names of your workmen, at least some of them. When you walk thru your plants say, 'Hello, Tim, John, and so forth.' They appreciate this act of recognition and you have made your first step toward the conservation of our industries."

Mr. Bird paid a glowing tribute to the clay industry, calling the products works of art.

Next on the program was an address by Prof. George H. Brown, who is in charge of the ceramic department of Rutgers College. Prof. Brown spoke on "The Classification and Possibilities of New Jersey Clays." His talk, which was purely technical, gave a comprehensive report of the British Ceramic Society's work and was well received.

Others who spoke were Charles Bloomfield, A. C. Clark and Abel Hanson.

BUILDING *in* N. Y. CONTINUES ENCOURAGING

CLARENCE H. KELSEY, president of the Title Guarantee and Trust Company, New York, says in his annual report:

CAREFUL REAL ESTATE MAN VOICES OPTIMISM

"Several years ago we deemed it wise to stop predicting an early return of good times in the real estate market. Urged on by our hopes we had prophesied it several times, but the market got worse instead of better, and of late, we have refrained from offering any special encouragement. This year, however, we are almost tempted to break our rule.

"There is no doubt that rents are better. Most of the new buildings are full and the older ones are feeling the increased demand for space. Renewals are being made in advance of the usual time. All this spells prosperity for the real estate owner, and even if the war ends very speedily, as we all hope it will, the business of this country is likely to continue in large volume for many years.

"The high cost of building construction has been a very effective check on unnecessary building. It looks as if once more the demands on the part of the population for space might equal the supply."

Mr. Kelsey is a conservative of conservatives. In the quotation above there is meat that is sweet to the optimistic. Coming on the heels of a most unusual year, and a big year, it has tremendous influence, for with Kelsey viewing the situation as he does, others look at the ftuure with a cocksureness that cannot be mistaken.

PLAN FILINGS FAR AHEAD OF LAST YEAR

Borough President Marcus M. Marks of Manhattan, speaking before the members of the Building Material Exchange in the Hotel McAlpin recently, said there was an unprecedented filing of plans in the last quarter of 1916, and that it is generally conceded among real estate interests that the conditions governing the demand for new construction are taking on unusual characteristics. Mortgage money is low. The total amount taken so far this year is in excess of five per cent. over the amount reported during the same period in January of last year. New building operation plan filings for the five boroughs so far this year are in excess of those in the same period last year. The new building plans and alterations filed so far this year show a total for the entire five boroughs of $7,091,466, as compared with about the same figure in the same period last year.

In these figures and on the sentiment of men like Kelsey and Marks, men familiar with real estate find the fact that prospective builders, instead of being wary about going ahead with construction, are taking advantage of present levels, because of the assurance being given by well-informed contractors and building material dealers to the effect that materials costs are not only inclined toward further advances, but that there will be increasing difficulty in obtaining supplies on building operations for any one coming into the market after the present season gets well started. General tendencies on the part of the building material manufacturers and distributors in the eastern market lean toward the encouragement of builders to proceed with operations.

Realizing that some encouragement should be given to prospective operators to insure adequate deliveries during the coming year, the tendency at present is to keep prices as near as possible to present levels. A conspicuous example is shown in the brick market. Prices today are approximately $9.25 base. This is wholesale dock New York. For retail trade prices, cartage plus ten per cent. profit must be added to this figure.

CONSERVATISM AND OPTIMISM HAND IN HAND

Plan filings the week January 15th to 20th in Manhattan this year total $1,229,800 for new buildings and $297,270 for alterations as compared with the corresponding week of 1916 which record reveals only $476,050 for new buildings and $24,000 for alterations. Brooklyn showed up well for the week ending January 20th with $1,231,650 for new buildings and $61,027 for alterations. In 1916 for the same period Brooklyn showed $779,400 for new buildings and $47,524 for alterations. For the entire five boroughs of New York plan filings for new buildings and alterations for the week ending

January 20th reached $3,618,541 and for the corresponding week of 1916, $1,925,076. From these figures it will be readily seen that there is nothing unhealthy about the building business so far in 1917. On the contrary it is made clear that conservatism and optimism are traveling hand in hand unafraid of high prices, positive in success and decidedly progressive.

Renewed activity in the building field has marked the past fortnight and the building material market is strong. There have been few extraordinary contracts awarded but smaller operations are plentiful. The entire territory, especially Manhattan borough, abounds in alteration projects. As the "Real Estate and Record Guide" well says, these alteration projects "reflect the true conditions to a marked degree and forecast a building year that will be a noteworthy period in the development of this city."

COSTS *in the* LIMELIGHT

After Lengthy Discussion of Details, Members of Illinois Clay Manufacturers' Association Pledge Themselves to Adopt Uniform Cost System

ALTHO HANDICAPPED by an unusually small attendance, the thirty-ninth annual meeting of the Illinois Clay Manufacturers' Association, held at Champaign on January 15th, 16th and 17th at the Beardsley Hotel, sounded the keynote of progress in many directions. Thru the efforts of the organization's active secretary and old standby, A. E. Huckins, a good program had been prepared for the gathering, and was carried out to the letter. A number of important present-day manufacturing and distribution problems were treated and discussed, and not a little knowledge of semi-technical subjects was obtained from papers read.

Reflecting the trend of thought and progress in the clay products industry, the subject of cost accounting came in for its full quota of consideration. During an entire morning's session the delegates discussed this most vital problem, and contrary to the usual outcome of such lengthy debates and discussions, *something was done*. Probably the most important work of the convention was accomplished in connection with this subject.

GROUP MEETINGS FORM PART OF PROGRAM

The group plan of meeting, originated by Mr. Huckins and put into practice for the first time at the association's meeting last year, was again used to accomplish some very good results. Manufacturers and dealers of drain-tile and hollow building tile met in one room and discussed their particular problems, while those interested in the manufacture and sale of face, common, and paving-brick held their sessions at the same time in another room.

However, by no means did the "meaty" schedule fail to include the usual social functions that formed an important part of the thirty-ninth annual meeting of this pioneer association. Each day's work was concluded by get-togethers that served to tie the bond of friendship tighter about those assembled and convince them that the "other fellow" was not quite so bad as the stress of competition sometimes makes him appear.

PERFECTS KILN THAT REDUCES RADIATION LOSSES

Due to the inability of President J. L. Buckley to attend, the convention was opened by D. C. Haeger of Aurora. Following a few introductory remarks by Mr. Haeger, an illustrated paper was read by R. K. Hursh of the University of Illinois Ceramic Department, on "The Development of the Continuous Tunnel Kiln," which was followed by an excellent exposition of the "Construction of a Round Down-draft Kiln," by T. N. McVay, superintendent of the Streator Brick Company, in which were recited the experiences of that company in perfecting a kiln that materially reduced radiation losses. This was accomplished by constructing walls that had a minimum thickness of three feet and a crown made up of a nine-inch brick course over which was a two-inch layer of keiselguhr, and on top of this a second course of brick 4 in. thick.

NEW CERAMIC DIRECTOR ADDRESSES ASSOCIATION

Professor C. W. Parmelee of the Ceramic Department, University of Illinois, then addressed the association on "The Clay Working Industry in New Jersey." Professor Parmelee, because of his long association with Rutgers College in that state and with the New Jersey Clay Workers' Association as its secretary, was able to give many valuable suggestions to those present.

The afternoon session was opened by H. C. Arnold, who read an interesting paper, illustrated with stereopticon slides, describing a certain type of continuous kiln. He was followed by Professor Edward W. Washburn, the new director of the Ceramic Department, University of Illinois, who spoke on "Ceramic Chemistry." Two papers were then presented by members of the state geological survey upon the geological occurrence of clays in Illinois, C. H. Cady taking as his subject the "Occurrence of Clays in Western Illinois," while Stuart St. Clair dealt with the "Occurrence of Refractory Clays near Anna, Ill."

"MOVIES" FOLLOW ANNUAL SMOKER

On Monday evening the annual convention smoker was held, and while Huckins didn't present a miracle play, yet a very instructive evening was spent. After listening to an illustrated talk on "Ceramic Products in Architecture" by Professor James M. White of the University of Illinois, the delegates journeyed to a local jitney opera house where Harvey C. Adams of Danville showed in "reel life" the method of constructing a monolithic brick road.

MEMBERS VOTE TO ADOPT UNIFORM COST SYSTEM

The second day's program was started off with a discussion of the need for and methods of cost accounting. H. T. Scovill, instructor in accountancy of the University of Illinois, delivered a paper on "Cost Systems" that outlined the requisites of a good system and showed the necessity for using the figures after they were obtained. Following Mr. Scovill's talk, the delegates participated in a general discussion of cost accounting, led by D. C. Haeger, chairman of the cost accounting committee. After several points regarding depreciation, interest and royalties had been discussed, and the interchange of figures urged, D. F. Stevens of Danville, with a degree of determination that weathered two failures to fit in a motion that would bring about real concerted and constructive action, fathered a motion to the effect that every member of the association present adopt the uniform cost accounting system that had been arranged by the cost accounting committee and report his costs, as shown by that system, to his group secretary at the end of the year.

The motion was passed unanimously, and to judge from the willingness of the members to adopt the system, it is hoped that some tangible results will have been obtained at the end of the year.

PAPER ON DISTRIBUTION PROMOTES DISCUSSION

A feature of the convention was the paper read by the only woman clay products dealer in the United States, Astrid S. Rosing of Chicago, and the discussion that it opened. Miss Rosing talked upon "The Dealers' Viewpoint" and showed the necessity for co-operative action on the part of the dealer and the manufacturer in the advertising of burned clay building materials. Many valuable ideas regarding the distribution of clay products were obtained from Miss Rosing's discourse.

Following this the delegates adjourned to the group meetings at which many pertinent questions were discussed.

CONSTRUCTIVE MEASURES URGED AT BANQUET

In the evening, a most enjoyable three hours were spent at the annual banquet. Here again Huckins had provided for the occasion by having a local celebrity, T. N. Nunan, on the job to keep away "Old Man Despair." After the tables were cleared and the cigars lighted, the group listened to some very important remarks by members of the ceramic faculty of the University and by some of their own number. One point brought out at this time worthy of especial recognition was that of Dr. Washburn, who urged an appropriation of $15,000 to establish a ceramic research bureau. Mr. Washburn also reminded the men that each county in the state was entitled to one ceramic scholarship every year, to give to the student receiving the endorsement of the state association and suggested that the organization utilize this privilege.

OFFICERS ELECTED FOR COMING YEAR

Wednesday's session consisted entirely of a business meeting at which the reports from different committees were read, and during which the election of officers took place. To succeed J. L. Buckley of Aledo, Douglas Stevens of Danville was elected president for the coming year; W. C. Holmes, Springfield, vice-president; A. E. Huckins, Champaign, secretary, and George Kanne, Peoria, treasurer.

An advisory board to co-operate with the Ceramic Department of the University of Illinois, which, let us not forget, owes its origin to the state association, was then appointed and consists of A. W. Gates, Colchester; F. W. Butterworth, Danville; W. D. Gates, Chicago, and A. E. Huckins, Champaign. To this board will be added a representative of the glass, cement and refractory industries so that the activities of the ceramic department will be increased along these kindred lines. Another commitee of importance, appointed at this session, was that to co-operate with the cement and lumber associations, to rate or credit concerns furnishing bonds to contractors in this state, in order to protect the material men from those firms which repudiate their claims. This is to be accomplished either thru the departments of the state, or in any other feasible manner. D. C. Haeger of Aurora was appointed chairman of this committee, Lou Binyon of Chicago and W. P. Varney, associates. The nominating committee, as appointed, consists of William Hammersmith, F. R. Carter, and J. H. King, while the resolutions committee is made up of F. W. DeWolf, Douglas Stevens and Professor Parmelee. Following the business session, those who had not boarded the train for home made an inspection trip to the new ceramic building at the university.

How Lumber Associations Will Advertise

An item of considerable interest to clay products manufacturers and one which should make our readers do some hard thinking in the matter of appropriating more funds for local and national advertising of burned clay building materials, was contained in a recent issue of "Printers' Ink," and reads as follows:

"While figures recently published regarding 1917 advertising appropriations by lumber associations are misleading, in that many of these organizations have not yet indicated what will be attempted this year, it is quite certain that there will be more lumber campaigns running than ever before, and that the amount invested will set a new record for this field.

"Most of the campaigns which have been in progress heretofore will be continued, while one notable addition will be that of the American Oak Manufacturers' Association, which, it is said, will have available about $50,000, $35,000 of which should go in advertising. J. T. Kendall, who has been assistant secretary of the Gum Lumber Manufacturers' Association, has been employed as secretary of the Oak Association, and has opened his offices at Memphis, Tenn., where the gum organization also has its headquarters.

"References to plans for advertising by the National Lumber Manufacturers' Association of Chicago, are based principally on prospects of this organization, according to Secretary Kellogg, as its membership is composed of other associations, most of which have not yet indicated the amount of the assessment to be levied in behalf of the national organization's promotion fund. Secretary Kellogg also said that advertising would be the last instead of the first thing taken up. Personal work in the field among the architects, engineers and retail lumber dealers will be given first place, so that when the association starts to use paid space, it will have something to advertise.

"The West Coast Association, which was reported to have $210,000 ready to invest in advertising, has not yet raised a fund, and the money it secures for advertising will go principally to the National Lumber Manufacturers' Association. The redwood people on the Pacific Coast are developing a campaign of moderate size, however. The Southern Pine Association has not indicated how much money it will appropriate, but it will continue its advertising and the White Pine Bureau, with a fund of $100,000, will be much in evidence. The Northern Hemlock Association will invest about $25,000, and the Southern Cypress Manufacturers' Association, whose campaign is the oldest of the lot, will continue on a big scale with an appropriation of about $50,000. The Gum Lumber Manufacturers' Association is expected to use $15,000 or so in advertising."

"Life of Portland Cement" Wanted

One of our readers has occasion to use a copy of the reprint entitled "The Life of Portland Cement" by G. G. and A. J. Wheat, which was read before the Iowa Brick and Tile Association, Des Moines, January 23rd, 1908.

This pamphlet is to be used in a very important connection, and being out of print, the editor of this magazine has not been able to comply with the request of the party who needs it. It does seem, however, that there must be a few extra copies of this booklet stored away in the offices of the clay products manufacturers of this country which could be made useful in this connection.

If any one our our readers happens to have a copy of this pamphlet, which is not now being used, and with which he would be willing to part, we shall certainly appreciate receiving same at his early convenience.

COUNTING *the* COST

The Third Talk on the Above Subject Which Points Out the Close Relationship Existing Between Cost Accounting and Bookkeeping

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company,
Uniontown, Pa.

A MAN once looked long and thoughtfully at the Siamese twins and then asked if they were any relation to each other.

This appears to be the attitude of those who, as pointed out in previous sections, look upon bookkeeping and cost finding as unrelated processes.

As a matter of fact, they are like two sides of a silver dollar—they are simply different ways of looking at the same expense item.

Now every company, large or small, has to keep track of the following transactions:

Buying material (including labor) and entering invoices or vouchers for them; selling finished product and entering charges for the material sold; paying for materials purchased, and crediting amounts received from sales.

THE BEST ACCOUNTING SYSTEM

The most efficient system of bookkeeping is that which takes care of all these transactions with the least amount of clerical labor.

Cost finding consists of classifying the items in the first list and showing their relation to the quantity of brick, or of any other commodity produced.

Thus, it will be seen that cost finding and bookkeeping work together like the blades of a pair of shears, *and with such shears one can cut costs!*

Yet, how many articles on cost finding begin with a consideration of bookkeeping? Instead, writers on cost finding seem to look upon bookkeeping as a sort of poor relation with whom they do not wish to associate.

A CONCRETE EXAMPLE

As the processes of manufacture are similar, whether the output is 5,000 or 50,000 brick per day, so the methods of accounting may be similar.

Consider a single plant, and a case in which the voucher system is not used. Get a book ruled as follows, with four columns for dollars (and sense), and which we may call a journal, invoice journal or operating register:

A SCRAP HEAP

Suppose an invoice is received for raw material, or fuel, or other supplies. Write the name of the creditor under "Description," enter the amount in the credit column under "Miscellaneous," and charge it under "Operating Accounts." Do the same for all invoices or other charges to the operating expenses for the entire month, and enter the total in the ledger under the heading of Operating Account.

This eliminates practically all operating accounts, such as "Raw Material," "Labor," "Fuel," "Supplies," "Repairs," etc., from the ledger, only the lump sum appearing.

The writer recently visited a scrap yard, looking for material which would serve for repairs to a dry-pan. A piece was found and purchased for less than one-fourth the cost of a new part. But the scrap heap seemed to contain in one mass a multitude of odds and ends, a child's toy, the works of an old clock, steel rails, "I" beams, all in hopeless confusion. That is what the column headed "Operating Accounts" appears to be at first sight; everything in a heap in hopeless confusion. But it isn't.

(*To Be Continued.*)

Form 1. **OPERATING REGISTER, JANUARY, 1917**

		Miscellaneous		Operating Accounts			
Date	Description	Dr.	Cr.		Dr.		Cr.
Jan. 1	Good Coal Co.		$650.00	f	$650.00		
Jan. 2	Refractory Clay Co.		175.00	d	175.00		
Jan. 5	O. K. Scrap Iron Co.	$200.00				r	$200.00
Jan. 8	Banner Feed Co.		50.00			l	50.00

MARKETING *the* PRODUCT

Helpful Articles and Timely Suggestions for the Dealer and the Manufacturer's Sales Force

SLACKERS

"Slackers," used as a war term in Great Britain, seems to define very fitly the class unwilling to bear their share of the burden of the country. These men, altho ready to profit by what the fighters do, ready to enjoy the immunity from attack secured by the sacrifice of the lives of others, are unwilling to risk their own precious lives.

It seems to the writer that Great Britain has no monopoly of the slackers, and that the term has its fitness in application to some men in business life as well as to to some of military responsibility.

SLACKERS IN THE BUSINESS WORLD

A salesman, as well as a citizen subject to military duty, may be a slacker, and tho his neglect or refusal to do his duty may not have as serious results—may not effect the safety of his country—still the results are important.

They effect the safety and the success of the business he represents, because a force made up of slackers would soon allow a business to degenerate into bankruptcy. The man who does only what he must do, who looks out only for his personal interest in the most selfish way, who is willing to sit back and let others produce the revenue that means profit, is a millstone about the neck of the business.

A SORDID AMBITION

The salesman who is a slacker may sell enough goods to hold his job, but that seems to be about the limit of his ambition. He wants to keep his position and he realizes that he must do some work in order to retain it, but he recognizes no need for going further than that. He expects a raise in his pay some day, of course, but he expects to get that as a reward for long service.

Results signify but little to this type of man, save in their direct relation to his own advantage. The slacker is looking out entirely for Number One.

Of a certainty, the business slacker is really doing himself more injury by his attitude than he can do his employers. He is making himself into a business failure, but he never seems to realize this, or even to think about it, and the methods available for calling it to his attention are not quite as pronounced as those used by Great Britain in getting after the unwilling males of the United Kingdom.

AN UNHAPPY MAN

Just what satisfaction there can be in business life for a man who is a slacker, the writer never could quite make out. He does not have any real pride in the success of the organization; he simply thinks he has when things go to please him. He has no apparent ambition of his own, no apparent desire for personal success. He might resent it if you told him he was a supine, ambitionless creature, but what else is true? The man who is ambitious certainly will not be a slacker.

And that type of man must be lacking in a sense of justice and fairness, because he is willing to let others do the work that keeps the concern going so that he can hold his job, which is really profitless.

The sooner the slacker gets out of the way and allows some live man to take his job, the better it will be for the whole organization. The slow men and the slackers in the force keep down the total return. They prevent anything like the establishment of a record. They hold back the efforts of the boss by refusing to take advantage of the prestige and the demand created by his work. They sit tight on their policy of quitting when they have done just enough to earn a day's wage, and to make sure they will not be discharged for absolute neglect of duty.

AN ORGANIZATION OF SLACKERS IS DANGEROUS

It is easy enough to see what will happen to a man who gets a large proportion of slackers in his organization. He will go to the wall. The slacker is an enemy to success in any business. He is constant drag upon it. Not only does he rarely pull his own weight, but the rest have to pull a little of it for him, and they feel there is no use in their working their heads off just to help pay a nice salary to a man who will not do his part.

Any man who is not a positive help to a business is certainly a hindrance. There is no satisfactory or successful half-way position in the matter. We either help pull or we ride. The man who will not help pull ought not to be allowed to ride. He ought to be dumped off at the first opportunity.

THE DISEASE IS CONTAGIOUS

One obvious slacker in the force is very likely to result in the development of others. The natural human tendency is to follow the line of the least resistance. If there is a constant temptation to let up and do less, some of us are going to yield to that natural tendency. If we see another fellow who is apparently successful in holding his job while not working half as hard as we do, while doing just enough to keep on the pay roll, we gradually and almost insensibly come to feel that we are making a mistake in working so hard ourselves.

Thus the presence of slackers in the force is an element that tends to make more of the same kind of men and to create discontent.

A slacker, bear in mind, is something more than just a man who does not do much, who takes the position of "Let George do it!" He is a man who knows what his real duty as a member of the organization is and yet has so little sense of shame, so little sensitiveness to shame, that he openly takes the slams that come his way, rather than do the thing he knows he ought to do.

A HARD MAN TO HANDLE

So a slacker is a hard man to handle. He does not respond to the appeals that influence others. Appeals to his loyalty do not influence him. Appeals to his sense of duty go right over his head. He has no sense of duty. Appeals to him to make him want to do what his

fellows are doing, to make him want to work with them and for them, get no response. Apparently the selfish side of him is the only vulnerable point. He must be made to earn more by needing more or by being paid less for what he already does.

While slackers with us are not the life and death problem Great Britain has found them, still they are a problem that effects the life and death of the business with which they are connected. Great Britain must cure her slackers and compel them to come up to the scratch. We are better off. We can fire them and take on men who are not troubled with the slacker's tendencies.

SPICY SUGGESTIONS FOR THE SALESMANAGER

They Changed the Plans

A brick salesman came into the office of his concern the other day and said to one of his immediate superiors:

"The Blank Brick Company has landed the contract for the Jones skating rink!"

"You don't say so!" was the astonished reply. "Why, I thought that was to be a stucco job."

"Yep, that's what I thought, too," returned the salesman. "At the time the plans were drawn it was announced that brick wouldn't figure, but I have just been informed by the contractor who got the job that it was brick, and that the Blank concern had been given the business."

A case of this salesman's taking too much for granted.

Locate the Man Who Has the Last Word

Who selects the brick? Who has the final say in choosing the exact material to be used? And who finally places the order? These things have to be known by the brick man before he can land the business, and the wise men in the trade—those who *get* the orders—are the ones who make it their duty to find out who is controlling the business before they go after it. The homely comparison about barking up the wrong tree applies forcibly to the brick dealer who, with his salesmen, spends time and energy on the wrong people in his efforts to land a certain contract.

"There was a certain big warehouse for which we wanted to furnish the brick," said a member of an active firm in the trade recently, "and we worked our heads off trying to land the business, until we found out that it was as good as settled before we had made a move. A quiet, retiring, unassuming officer of the company building the warehouse, completely unknown personally to us, was the man who had control of the business, as it happened, and another fellow knew of it. You don't need three guesses to hit the man who landed the business. Anyway, it wasn't our firm—we were after the wrong man, in that case."

It is certain, however, that in a handsome majority of cases, the architect or engineer designing the building selects the brick also. He is guided only in a general way by the owner, especially if the job is a large one, even such details as texture and color being left to him because that is what he was hired to do—design the building, down to the last detail. That is the reason, of course, why the man with materials to sell, brick included, "warms up" to the architects of his city in very friendly fashion.

The dealer who is close to the architect on a given job certainly stands an excellent chance of furnishing the brick to be used on that job. This makes it good business to keep closely in touch with the architects, and brick contractors as well—because the latter sometimes handle jobs on their own initiative—seeing to it that nothing is left undone to keep them apprised of the fact that you are in the brick business.

An excellent idea, followed by some enterprising retailers and manufacturers, is to have delivered to each architect and builder a sample of anything new in the brick line, whether it is an entirely new product or merely a new way of handling an old product. Attentions of this sort pay in business, and even a single order of size landed by this means will more than cover the expense of the work over an extended period.

Brick is the Standard

One of the greatest arguments in favor of the use of brick and other clay products is that they are standard.

Brick is the basis of comparison which is used by manufacturers of other materials. In order to create a place for them, the claim is usually made that it is "as good as brick."

For example, a lumber manufacturer recently put out a house building material, made of wood, of course, but built to resemble brick, when finished according to his directions. This was in effect a tribute to the appearance of brick.

The manufacturers of cast-iron pipe are conducting a publicity campaign, and are directing their efforts largely against vitrified pipe. Why? Because vitrified pipe is standard in the sanitation field, and is attacked because it is the leader.

A manufacturer of a substitute for fire-brick in lining stoves, grates, and so forth, if such a thing were possible, could do no better than say that it will give as good service as the first mentioned material. The standard, reliable material furnishes the basis on which to build claims of quality.

Any time the brick man is confronted with competition from other classes of material, let him remember this and ask the customer, "Why not use the one product with which every other is invariably compared in seeking to suggest quality?"

A New Place for Clay Products

The writer was recently in a store which makes a big feature of its camera and photographic development work, having established a large following among amateurs, who bring their work there for development and printing. One man with several assistants is kept busy looking after this department, an entire floor of the building being given over to the practical details.

In a place of this kind the matter of equipment is given more attention than in shops where developing is handled on a small scale, and it was interesting to see that the fluids used in developing were contained in large vessels made of vitrified clay. These, it was explained, resist the action of acids better than anything else. They are supplied by one of the big houses in this business, having been found by experience to be the most satisfactory for the purpose.

This is just a little point, but it is nevertheless another "feather" in the "cap" of clay products.

China Painting Still Popular

E. Schulz, who is connected with the china department of Devoe, the Chicago artists' supply store, said the other

day that tho, owing to trade conditions, sales of china for hand painting purposes have not been as great during the past two years as formerly, there is every evidence that this form of art work is still popular, and that it will "come back" strong with the conclusion of the war.

"American manufacturers have been hard pressed to supply the demand created for their goods by the shortage of imported pottery products," said Mr. Schulz, "and this is why sales have not been so large of late. But the artists still like to paint on china, and there is no real lessening of interest. The requirements affecting chinaware used in this way are unusually severe. The material must be perfectly smooth and without sandmarks. After the china is painted, it is brought back to us for firing, and is fired in kilns at a temperature of about 1,500 degrees Fahrenheit."

Mr. Schulz believes that American potters should study the design of kilns used abroad, so as to turn out perfect work and hold the favor of artists against foreign competition after the end of the war permits the free movement of goods of this kind.

Enameled Brick Possibilities

One of the most important things for the salesman to remember is that he should know more about his product and its uses than anybody else. This means that he should keep his eyes open, and notice the things that are being done with it, because many users develop features which the manufacturer himself has not thought of, and which can be made to play an important part in promoting business, by calling the attention of others to these possibilities.

Every specialty must have "talking points," thru which to secure the interest of prospective buyers. The clever salesman marshals these talking points in effective style, bringing them up in such a way that each reinforces the other. They serve both to secure interest and to refute objections as to price of the product, quality, and so forth.

Enameled brick is one line which has a lot of talking points of the most interesting character and they can be made to play a big part in influencing business, if they are made use of properly. For instance, the salesman of one of the leading concerns in this line recently emphasized the fact that the light-reflecting qualities of the brick are proving to be an important feature.

"In office buildings, apartments, and so forth," he said, "it is becoming customary to use enameled brick for facing the inner courts. That is because the white brick reflects the light, and gives those with offices and apartments facing on these courts much better illumination than they would get if material of the ordinary kind were used.

"Enameled brick, of course, looks clean, and looking clean is almost as important as being clean, for appearances count a great deal these days. Bakers, butchers, grocers and others who want to impress the public [illegible] this line use enameled brick, and we are now selling it for the interiors of creameries, laundries and other more ambitious plants which want to emphasize the sanitary features of their work.

"But it is also very easy to keep enameled brick surfaces in spotless condition, and to maintain the appearance of a building in which it is used at one hundred per cent. I know of many owners of mercantile buildings which have fronts of this kind, and tho they are in smoky, soft-coal towns, they see that their buildings are generally immaculate by having the fronts washed every now and then. Incidentally, doing this calls the attention of the public to the advantages of enameled brick and furnishes good advertising in this way."

The salesman who goes about looking for chances to develop new lines of argument on his proposition is bound to put "punch" into his talk, because it will be filled with specific instances and with "brass-tacks" material, instead of merely general statements.

COST ACCOUNTING *for the* CLAY PLANT

Presenting the Twentieth, Twenty-first and Twenty-second Tables of the Uniform Cost System That is Appearing in These Columns from Issue to Issue

By A. J. Huac

IN DISCUSSING with our readers the series of cost tables and explanations which are appearing in these columns from issue to issue, it has been learned that some find the system a little complicated, and therefore, somewhat difficult to understand in all of its details.

This state of affairs may be explained in part by reminding our readers that not all of us are greatly versed in the art or science of keeping costs. It should be remembered that only recently has much emphasis been placed upon this important factor in business and very few concerns have made much of a study of the subject. We usually walk slowly on paths with which we are not acquainted, and so, with the system in question the way may not be clear because of its strangeness.

Then, it should be remembered that the system is designed as uniform for a number of branches of the clayworking industry, and therefore, is naturally not as simple as one intended only for a common-brick plant. Furthermore, it is not claimed that this series of tables is perfect, but is a step in the right direction. Most manufacturers, it is believed, in adopting the system will find it advisable to omit or change some of the tables to suit the needs of their particular business.

If there is anything in either the tables or the accompany-

Table No. 20—Division of Expenses. Not Including

Line No.	Post From Invoices Memorandums or Credit Slips Numbered.		Repairs, Tools and Supplies																	
			Digging	Power	Preparing	Making	Drying	Setting	Burning	Emptying	Loading from Yard	General	Stripping	Stable and Teams	Administration	Clay Freight or Hauling	Clay Royalty	Fuel, Water and Electricity	Interest on Bills Payable	
		Column No.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	XV	XVI	XVII	
		Post From	Invoices as received or whenever paid in cash without receipt of invoice. Columns XIV and XV should have monthly invoices. If not they can be regulated monthly like interest, taxes, etc., at bottom of Table No. 22.																	
1 2 3 4		Forward																		
																			ANY NUMBER	
94	T20—XXXX	Division of Store Room																		
95 96	For XVI and XXXVIII only See those Columns	Labor Superintendence												Post From T19-32-XXVIII Post From T13-33						
97		Forward or Total																		
		Post Line No. 98 from	T19—XVI	T19—XVII	T19—XVIII	T19—XIX	T19—XX	T19-XXI	T19—XXII	T19—XXIII	T19—XXIV	T19—XXV	T19—XXVI							
98		Repair Labor																		
99		Grand Total																		
		Post Line No. 99 to	T1-2	T2-2	T3-2	T4-2	T5-2	T6-2	T7-2	T8-2	T9-2	T10-2	T11-2	T12-2	T15-5	T1-3	T1-4	T21-99	T15-8	

ing explanatory matter that you do not understand, please write the Editor of "Brick and Clay Record" about it. It is more than possible that he may be able to help you. At least, he is willing.

Continuing a presentation of three tables in every issue, the following are submitted:

DIVISION OF EXPENSES

On this table we collect all of the expenses incident to the business, except operating and betterment labor. Repair labor is included here.

We post all of these expenses when the invoice is received. We use the full amount of the invoice, and if any discounts are taken, we credit them in column XXXI. Columns XIV and XX must be posted monthly, even tho they are not paid that often, and sometimes only yearly. The method of doing this is shown on table No. 22.

There are some supplies such as oil, lumber, bolts and belting which in some plants are put in a storeroom at the time of purchase. Usually, the proportion of oil used by any department is constant, so that the invoices can be distributed when received. Quite a few other supplies, however, at times are purchased for any emergency, and any use. Obviously, these invoices cannot be distributed when received. We charge them entirely to column XXXX of table No. 20, under the heading "Storeroom." A charge must be made for everything going out of the storeroom, against the department using the material or tool. These charges are collected and totaled, and on line No. 94 of table No. 20 each department is charged with the supplies it has used.

Of course, some kind of an inventory must be kept of storeroom supplies, crediting what comes in and debiting what goes out.

Again, care must be taken to see that nothing, except what was originally charged in column XXXX, shall be charged in line No. 94. If a new gear is received for a machine, it is naturally charged when received to the department in which the machine is used. It may be kept in the storeroom until needed. Evidently, when it is taken out, it should not be

Any Labor Except Repair and Betterment Labor

XVIII Taxes	XIX Fire Insurance	XX Liability Insurance	XXI Superintendence Salaries	XXII Salesmen Salaries	XXIII Executive Salaries	XXIV Office Salaries—Administration	XXV Superintendence—General Expenses	XXVI Salesmen Traveling Expenses	XXVII Salesmen Office and General Expenses	XXVIII Advertising	XXIX Administration Office Expenses	XXX Administration Traveling and General Expenses	XXXI Credits—Discounts From Invoices, Interest at Bank and Bills Receivable	XXXII Outgoing Freight	XXXIII Losses in Shipments	XXXIV Allowances	XXXV Commissions	XXXVI Discounts	XXXVII General Expenses Not Governed by Any Other Item	XXXVIII Betterment	XXXIX Dividends, Interest on Bonds, etc.	XXXX Store Room	XXXXI Total
OF LINES																							
Post to T21-90-III Post to T21-91-III																Post From T19-35-XXIX Post From T13-35							

Use Line No. 98 only for columns Nos. 1 to XVI.

T22-XVI	T22-XX	T22-XXIV	T13-1	T14-9	T15-1	T15-2	T13-2	T14-10	T14-11	T14-12	T15-3	T15-4	T15-11	T14-2	T14-3	T14-4	T14-5	T14-6	T15-9	T17-4	Ledger	T20-94 and Divide	

charged to the department the second time nor credited to the storeroom.

We show lines No. 94 to 99 because any number of lines can be used. If only fifty lines are used these lines would be numbered No. 44 to 49.

When any repairs or supplies are returned to the concern from which purchased for any reason, after they have been charged thru this table, a cross entry can be made in the same column with red ink. When the column is totaled, the amount in red ink should be deducted. The same is true when any equipment is sold. An entry can be made in "Betterments" column in red ink.

Bad debts occur in any credit business. These should be charged in column XXXI by deducting from the credits. If the credits are too small, the total becomes a debit expense and should be charged and posted like column XXX.

FUEL, WATER AND ELECTRICITY

Table No. 20 contains the total charge for fuel, water and electricity. Table No. 21 is intended to distribute those total charges into the amounts used by each department. The best method is to show the distribution on this sheet at the same time that the invoice is entered on table No. 20. Of course, the freight charges on any car must be divided in the same proportion as the value of the car.

In some plants the coal is all unloaded in one place and hauled to the different points of use. These plants can use columns No. XVI, XVII and XVIII, which are total columns as a coal storage column. Then, when any department hauls coal, the correct charges can be made in the columns proper to that department. In that case lines No. 94, 95, 96 and 97 will be used only in columns XVI, XVII and XVIII.

The second half of this table ought to be easily understood. Some plants have their own water supply while others buy their water. If the water is purchased at a stated price per year or per quarter, the cost per month should be entered each month.

As on table No. 20, we show the last lines numbered just short of one hundred. Of course, if only fifty lines appear

TABLE NO. 21—DIVISION OF FUEL,

Post Entire Table from T18-XVI by dividing

Line No.	Date	Post From	RESOURCES	COAL								
				Digging			Stripping			Power		
				Tons	At	Total	Tons	At	Total	Tons	At	Total
			Column No.	I	II	III	IV	V	VI	VII	VIII	IX
1			Bought during month									
2												
3												
4												
			Any Number of Lines									
90		T20-95 XVI	Labor, Unloading and Hauling Coal									
91		T20-96 XVI	Superintendence for Same									
92			Totals									
93			Average Price Per Ton									
94			Total Cost of Coal Purchased, Each Division									
95			On Hand First of Month									
96			Total									
97			On Hand End of Month									
98			Balance equals coal used									
			Post Line No. 98 To			T1-5			T11-3			T2-3
99		T20 XVI	Total All Fuel, Water and Electricity									

Line No.		Water		Electricity		Gas or Oil	
	Column No.	XXV	Post To	XXVI	Post To	XXVII	Post To
101	Meter Reading End of Month						
102	Meter Reading First of Month						
103	Amount Used						
104	Rate					If gas or oil are	
105	Net Cost for Month					used, post the	
	Divide as follows:					same as for coal.	
106	Dept. 1—Digging		T1-6				
107	Dept. 2—Power		T2-4		T2-5		
108	Dept. 3—Preparing		T3-4				
109	Dept. 4—Making		T4-4				
110	Dept. 11—Stripping		T11-4				
etc., etc.							

WATER AND ELECTRICITY

into proper columns on this sheet.

Dryer			Kilns			Total All Divisions			WOOD OR OIL					
									Dryer			Kilns		
Tons	At	Total	Tons	At	Total	Tons	At	Total	Tons	At	Total	Tons	At	Total
X	XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX	XXI	XXII	XXIII	XXIV

If wood or oil is used post the same as for coal.

T5-4 T7-4

on the page those that are numbered 90 to 99 would be numbered 40 to 49.

VALUE OF PLANT

The question of depreciation always causes a difference of opinion among cost system advocates. The general impression among clayworkers is that the proper method is to determine one rate of depreciation for the entire plant. We feel that this is not accurate. The depreciation of a plant with a limited supply of clay is surely larger than if this same plant had an unlimited supply of clay. We, therefore, have devised the table showing the value of the plant by departments. Each department is charged with an amount for depreciation which is determined by a close study of its equipment, with little consideration for the other departments.

Finally, at line No. 22, we determine a monthly charge to cover interest, taxes, fire insurance and depreciation of each department. This table No. 22 is figured out once a year. The items on line No. 22 include all charges against the plant investment, and in this way we save figuring these items every month. From lines No. 23 to No. 27 we determine the plant value for the coming year.

The interest charges on line No. 9 are based only on the value of the plant. Some of the capital stock is always used as operating capital. We determine the interest charge on this amount in lines No. 28 to 32.

Lines No. 101 to 112 are used principally to determine debits or credits for items of taxes, fire and liability insurance, for posting to table No. 17—Monthly Balance Sheet.

When a factory is leased the operator should divide into departments the monthly charge for the lease in proportion to the value of the plant. If the lessor is to pay all taxes, fire insurance, and so forth, use only line No. 22. If the lessee is to pay taxes and fire insurance divide the monthly charges for lease, so as to cover only interest and depreciation charges.

* * *

Railroads Report Decreasing Car Shortage

The freight car shortage which in November was becoming increasingly serious has decreased almost fifty per cent. since that time, according to the figures for January 1st, 1917, which the American Railway Association made public on the 16th.

On November 1st there was a shortage of 114,908 freight cars; on December 1st it was 107,778, and on December 31st it had fallen to 59,892 cars.

This decrease in the car shortage is attributed more than anything else to the co-operative efforts of the Interstate

Table No. 22—Value of Land, Buildings and Equipment

Method of Figuring Interest, Taxes, Insurance and Depreciation.

Line No.	Post From		Digging	Power	Preparing	Making	Drying	Setting	Burning	Emptying	Loading from Yard	General	Stripping	Superintendence, Selling and Administration	Stable and Teams	Total	Post XIV To
		Column No.	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	XIII	XIV	
1		Original Cost Land															
2		Original Cost Buildings															
3		Original Cost Equipment															
4		Original Cost Total															
5		Value Jan. 1, this year Land															
6		Value Jan. 1, Buildings															
7		Value Jan. 1, Equipment															
8		Value Jan. 1, Total															T17-1
9		Interest based on value, Yearly															
10		Interest based on value, Monthly															
11		Taxes and Fire Insurance, Yearly															
12		Taxes and Fire Insurance, Monthly															
13		Depreciation since Jan. 1—Land—Rate															Add Column XIV Lines 15, 18, 21 and Post to T17-2
14	(5x13)	Depreciation since Jan. 1—Land—Yearly															
15		Depreciation since Jan. 1—Land—Monthly															
16		Depreciation since Jan. 1—Buildings—Rate															
17	(6x16)	Depreciation since Jan. 1—Buildings—Yearly															
18		Depreciation since Jan. 1—Buildings—Monthly															
19		Depreciation since Jan. 1—Equipment—Rate															
20	(7x19)	Depreciation since Jan. 1—Equipment—Yearly															
21		Depreciation since Jan. 1—Equipment—Monthly															
22	(10+12 + 15 + 18+22)	Total Monthly Charges for Interest, Taxes, Fire Insurance and Depreciation															
		Post Line No. 22 to	T1-11	T2-7	T3-8	T4-8	T5-8	T6-7	T7-8	T8-7	T9-7	T10-6	T 11-12	T15-6	T12-3		
23	(8)	Total Value Jan. 1 this year															
24		Deduct Yearly Depreciation															
25		Balance															
26		Add Betterment since Jan. 1															
27		Value Dec. 31 this year															
		Post Line No. 27 to T22 Lines 5-6-7-8 to be put in use next year															
28		Total Capital Stock and Bonds Outstanding															T17-24
29		Total Value of Plant Jan. 1 this year, which is equal to Total of All Values on Line No. 8															
30		Difference if any															
31		Interest on this amount—Yearly															
32		At 6 per cent—Monthly															
		Post Line No. 32 to			T15-7												

Commerce Commission, shippers and the railroads. The latter for the past two months have had a special committee of the American Railway Association to deal with the subject. Emergency measures have been adopted to meet the abnormal situation, and progress has been made in getting cars out of the congested districts into the territory where they are most needed.

The association makes public a statement showing car shortages and surpluses for the ten years ending January 1st, 1917.

These figures show that for the whole period of nearly nine years preceding the middle of August this year, there had been a continuous net surplusage of cars not in use on American railroads, except for about one month in 1909, three months in 1912, one month in 1913 and the month of March last year.

In 1908 there was at one time a surplusage of over 413,000 cars, and at no time during the year were there less than 100,000 idle cars.

In 1909 the maximum net surplusage was 332,513. In 1910 the maximum was nearly 143,000 for July 6th, and there was thruout that year a net surplusage of at least 7,000 cars not requisitioned by shippers. For 1911 surplus cars numbered on March 15th over 207,000 and there were at no time during the year less than 20,000 cars standing idle.

In January, 1912, there was a net surplusage of approximately 136,000. From November, 1913, until March, 1916, there was a continuous surplusage of cars, the number running in October, 1914, to over 200,000 when the American Railway Association stopped compiling them. Compilation was resumed on February 1, 1915, when idle cars still numbered over 279,000.

The number of freight cars owned by the railroads of the country increased during that same eight years from 1,840,009 on July 1st, 1907, to 2,518,855 on July 1st, 1916.

* * *

The Wadsworth (Ohio) Brick and Tile Company announces an increase of capital from $75,000 to $200,000.

For Taxes and Fire Insurance Use Estimated Figures in Columns XV and XIX, Until Annual Costs Are Known

Column No.		Taxes						Fire Insurance						Liability Insurance					
		Estimated Monthly Expenses	Post XV To	Actual Invoice	Debit Acc't More Due Than Invoice	Credit Acc't More On Invoice Than Due	Post XVII or XVIII To	Estimated Monthly Expenses	Post XIX To	Actual Invoice	Debit Acc't More Due Than Invoice	Credit Acc't More On Invoice Than Due	Post XXI or XXII To	Estimated Monthly Expenses	Post XXIII To	Actual Invoice	Debit Acc't More Due Than Invoice	Credit Acc't More On Invoice Than Due	Post XXV or XXVI To
		XV		XVI	XVII	XVIII		XIX		XX	XXI	XXII		XXIII		XXIV	XXV	XXVI	
	Post From			T20-XVIII						T20-XIX						T20-XX			
101	January						T17-28 or T17-19						T17-28 or T17-19		T13-3				T17-28 or T17-18
102	February																		
103	March																		
104	April																		
	One Line for Each Month																		
111	November																		
112	December																		

Brick Paving at Good Roads Congress

In arranging the program for the Seventh American Good Roads Congress to be held in the Mechanics building, Boston, Mass., February 5th to 9th, under the auspices of the American Road Builders' Association, the committee in charge has selected a number of leading subjects and has decided to devote the entire session or a definite part of a session to the consideration of each topic. These topics will be introduced in a formal paper prepared by a leading authority and the subject will then be opened for discussion by the delegates. Among the subjects to be treated at the various sessions, brick will have an important place. "Best Practice in Brick Pavement Construction" is the title of a paper to be read by F. R. Williams, paving engineer of Cleveland, Ohio.

The tentative program for the congress calls for the opening of the Eighth National Good Roads Show on February 5th. The registration of delegates and visitors will proceed during the day. In the evening the officers of the American Road Builders' Association will tender a formal reception to the visitors in convention hall.

The first session of the congress will be called to order in the convention hall at eleven o'clock Tuesday morning, February 6th, by the president of the American Road Builders' Association. Governor S. W. McCall of Massachusetts, and Mayor James M. Curley of Boston will welcome the delegates to the state and city respectively, and other addresses will be made by Col. Wm. D. Schier, chairman of the Massachusetts Highway Commission; Charles F. Weid, president of the Boston Chamber of Commerce, and George W. McNear, president of the Bay State Automobile Association. President A. W. Dean will make the response for the Association.

A particularly interesting feature of the convention will be the "Question Box." Questions to be discussed must be handed in at the registration booth not later than noon on Wednesday, February 7th.

On Tuesday evening, beginning at 7:30 o'clock, an entertainment and smoker will be given by the Massachusetts Highway Association at convention hall, on the corner of Garrison and St. Botolph streets. The annual dinner of the American Road Builders' Association will be held at the Hotel Copley-Plaza at seven o'clock on Wednesday evening.

The reports of committees will be presented at a business meeting of members of the association at 4:30 o'clock on Thursday, February 8th.

* * *

COMING CONVENTIONS

Feb. 1st and 2nd—Wisconsin Clay Manufacturers' Association, at Milwaukee, Wis. Headquarters Republican House.

February 12th and 13th—National Builders' Supply Association, at Chicago, Ill. Headquarters, Hotel Sherman.

March 5th to 10th—American Ceramic Society and National Brick Manufacturers' Association, at New York, N. Y. Headquarters McAlpin Hotel.

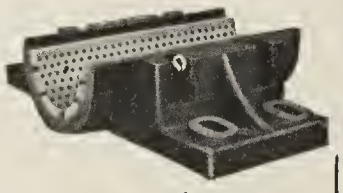
March 5th to 11th—Second National Complete Building Exposition, Grand Central Palace, New York, N. Y.

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The LETTER BOX

A Place Wherein Letters That Have General Interest Are Published and Commented Upon

Volunteers Brick Silo Information

In the October 17th, 1916, issue of "Brick and Clay Record" on page 714 was published an item under the subject, "Brick Silo Gives Perfect Satisfaction," in which a photograph of a well-built brick silo was printed, together with some information concerning same. Reference was made in this item to the work done by J. P. Christensen of Racine, Wis., in the building of many brick silos in that state and the surrounding territory.

"However," the item reads, "the real reason why brick has not been used more universally for silo purposes, according to J. P. Christensen of Racine, Wis., is due to the fact that, without some kind of a special reinforcement, it is practically impossible to build a brick silo with any assurance as to its not cracking, as has been proven in many instances."

Commenting upon this item, Matt King, secretary of the Permanent Buildings Society, Des Moines, Iowa, writes as follows:

A short time ago I promised you some information concerning brick silos, which really amounts to comments on an article found on page 714 in the October 17th issue of "Brick and Clay Record,' and here it is.

The form of silo reinforcement which was originated and patented by J. B. Christensen of Oshkosh, Wis. has been entirely successful. However, the intimation accredited to him in the article mentioned above as to other systems being a failure is at least misleading. We have no intention of belittling the importance of Mr. Christensen's invention or his pioneer work in silo construction. However, it is a very simple matter for any brick manufacturer or silo sales organization to adopt a simple, economical reinforcing system, using only standard steel. Your article mentions the fact that the suitability of hollow tile for silo construction is indisputable. This is because it embodies a little bit of good engineering and has been backed by a large number of good mechanics, all of whom have gotten fair pay for their work.

Exactly the same method of silo and door-frame construction and reinforcements can be used with entire success in brick silos. No. 3 bright Bessemer wire has come to be the standard article on the market and is almost invariably used for silo wall reinforcing. This is placed in the mortar joints and hooked to the steel in the door jams at convenient distances, four feet or so apart. The door jams are bonded to each other by steel imbedded in masonry extending across the doorway. The amount of this reinforcing should be one-half more in the cross sectional area than is found in the corresponding height wall.

If further details of this construction are desired, you may refer to the United States government or the Iowa State Experimental Station bulletins, all of which may be out of print at present. If so, the same information maybe secured from the writer's book on silos published by the Webb Publishing Company, St. Paul, Minn.

There is no reason why hard burned building brick and paving "seconds" should not be used to help dot the whole country with burned clay silos. The principal differences to be considered in the construction of a brick silo from that of hollow-tile is that a coat of plaster is more necessary on the inside of brick silos as the vertical distance between joints is less, giving the settling silage less opportunity to crowd snugly against the wall. This is entirely overcome



by putting a thin coat of plaster on the inside. Crowd the trowel right down to the wall and use as little material other than clay as possible.

The Permanent Buildings Society will be glad to furnish a detailed drawing of a reinforcing system for brick silos, if this is desired.

We are greatly indebted to Mr. King for the enlightening information covering the reinforcement of brick silos, which is contained in his letter given above. We heartily commend Mr. King's recommendations to our readers who are making common or paving-brick, as being something worth studying in connection with the marketing of their product for this important farm structure—the silo.

* * *

The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

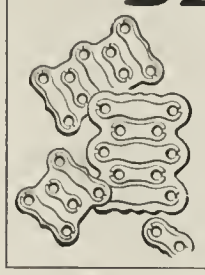
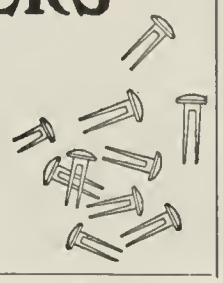
WHILE THE WARRING NATIONS of Europe are singing their respective battle hymns, America is singing a song of wonderful prosperity, not set to musical notes but, rather, with bank notes of every denomination. This prosperity, the responsibility for which may be justly placed at the door of the fighting nations, is of such scope that every little village and hamlet is sharing with the larger cities, the increased amount of building construction shown in the 1916 reports.

And the manufacturers of brick, tile and other burned clay building materials have taken an important position in the chorus that has sung the song thruout the year. On every hand is indicated the tremendous prosperity that has been enjoyed by those whose money is invested in the business of manufacturing clay products, and despite the training given by the excessive demands of the past year, the dawn of the second month of the present year finds any number fearful lest the activity of the coming season be beyond their ability to keep abreast of it. To cope with this expected business avalanche, plants in all sections of the country are making improvements and installing additional machinery to increase their capacities—to enable supply to hold its own with demand during the coming year.

The order books of terra cotta and hollow building tile manufacturers have refused to take a back seat in comparison with those of the brick manufacturer. Possibly no better sales, with such satisfactory prices, were ever experienced before, and while the period referred to may be granted as having been exceptional, yet there is no indication whatsoever, that the coming season will not set up equally good records.

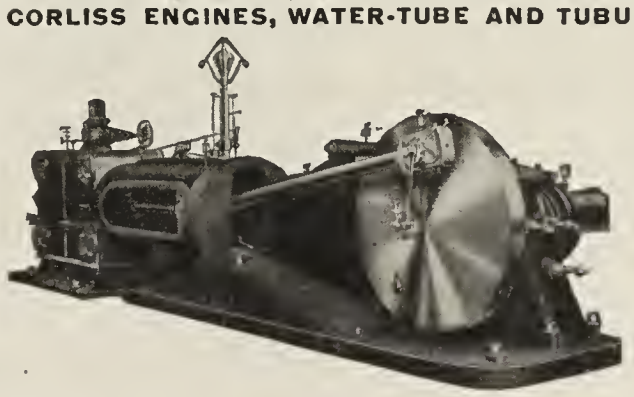
BIG GAINS MADE IN 1916 BUILDING

Altho the building reports of 1916, almost all of which have now been received, constitute a reliable indication of the increased activity enjoyed in building construction by the nation during the past year, yet it is almost impossible to tell just how much new work, and the cost thereof, has been done during that period. This is due to the fact that many

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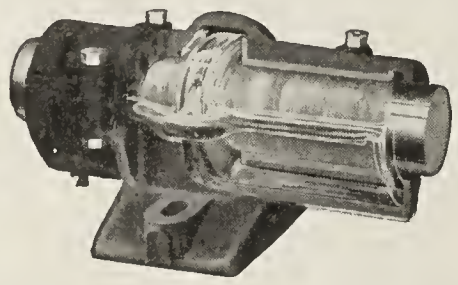


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small towns do not have a building bureau and, consequently, a tremendous amount of constructional work goes unreported. Not every city showed an increase during the past year, but almost all of those few which slipped back dropped into notches close to their previous marks, making the loss almost unnoticeable.

A summary of the building operations as shown in the returns received from cities in all parts of the country gives the high honors to New York, which has a total of $168,276,521 as the value of constructional work for 1916, against $103,023,800 for 1915. Chicago ranks second with a total of $112,841,150; Boston third with $64,078,000; Detroit fourth with $51,062,790, and Philadelphia fifth with $49,896,370. Duluth Minn., made the biggest gain of any of the larger cities, in a jump that brought its total from $2,714,464 in 1915 to $10,179,413 in 1916. The total amount of work in the seventy cities given in the table below reached $811,802,216, as against $735,102,273 in 1915, or a gain of $76,704,943.

TABLE OF BUILDING FIGURES FOR MANY CITIES

The following table gives the increases made by seventy-one of the larger American cities in the value of building done in 1916 over that of the preceding year:

	Valuation 1916	Valuation 1915
Akron, Ohio	$12,823,540	$ 6,030,950
Albany, N. Y.	4,224,781	4,771,980
Allentown, Pa.	2,177,924	1,477,135
Atlanta, Ga.	3,679,968	4,585,639
Baltimore, Md.	10,102,113	7,318,059
Binghampton, N. Y.	1,925,751	1,517,902
Birmingham, Ala.	2,386,869	1,730,956
Boston, Mass.	64,078,000	64,261,000
Bridgeport, Conn.	6,713,000	8,707,119
Brockton, Mass.	1,359,065	1,167,618
Brooklyn, N. Y.	41,282,644	45,601,851
Buffalo, N. Y.	12,611,000	11,792,000
Canton, Ohio	4,369,655	2.005,190
Cedar Rapids, Iowa	1,779,000	1,761,000
Charlotte, N. C.	838,100	1,118,706
Chicago, Ill.	112,841,150	97,289,680
Cincinnati, Ohio	10,617,360	14,025,333
Cleveland, Ohio	32,981,603	32,660,305
Columbus, Ohio	7,194,240	4,928,425
Denver, Col.	4,061,630	2,648,575
Dayton, Ohio	3,735,000	2,254,862
Detroit, Mich.	51,062,790	31,534,800
Duluth, Minn.	10,179,413	2,714,464
Elizabeth, N. J.	2,301,490	1,362,988
Erie, Pa.	2,801,092	2,054,298
Evansville, Ind.	1,417,396	2,252,557
Grand Rapids, Mich.	3,479,239	2,684,087
Harrisburg, Pa.	1,825,145	1,428,950
Hartford, Conn.	7,383,163	3,573,595
Huntington, W. Va.	1,575,376	1,182,560
Indianapolis, Ind.	8,862,107	5,984,924
Jacksonville, Pa.	1,366,292	1,658,158
Kansas City, Kan.	748,000	971,240
Kansas City, Mo.	11,562,504	10,667,405
Los Angeles, Cal.	15,036,045	11,888,662
Louisville, Ky.	4,022,275	4,055,890
Memphis, Tenn.	3,091,710	2,696,238
Milwaukee, Wis.	15,042,492	12,349,058
Minneapolis, Minn.	23,914,475	16,349,080
Nashville, Tenn.	4,140,769	1,511,983
New Haven, Conn.	5,020,446	7,104,947
New Orleans, La.	3,117,604	2,826,670
New York and Boros.	168,276,521	103,023,800
Newark, N. J.	8,808,316	7,912,184
Norfolk, Va.	2,644,363	1,865,958
Oakland, Cal.	5,368,345	5,045,285
Omaha, Neb.	7,225,957	5,382,005
Philadelphia, Pa.	49,896,370	39,544,225
Pittsburgh, Pa.	13,574,810	14,327,010
Portland, Ore.	6,997,000	4,895,245
Richmond, Va.	4,985,591	3,244,752
Rochester, N. Y.	9,382,447	9,108,333
Sacramento, Cal.	2,097,860	1,395,578



	Valuation 1916	Valuation 1915
St. Louis, Mo.	15,900,121	11,428,020
St. Paul, Minn.	11,086,670	11,678,565
Salt Lake City, Utah	2,776,259	2,252,620
San Francisco, Cal.	17,858,991	13,968,704
Savannah, Ga.	1,244,592	1,646,720
Seattle, Wash.	8,482,054	6,470,655
Sioux City, Iowa	3,089,505	2,051,397
Spokane, Wash.	1,012,072	1,199,522
Springfield, Mass.	7,101,032	6,062,181
Syracuse, N. Y.	4,394,960	4,663,216
Toledo, Ohio	8,799,194	7,714,679
Trenton, N. J.	2,378,651	2,590,861
Utica, N. Y.	1,819,170	2,133,020
Washington, D. C.	12,760,526	11,738,067
Wheeling, W. Va.	976,866	590,184
Wilmington, Del.	2,787,864	1,524,879
Worcester, Mass.	6,624,259	4,561,129
Youngstown, Ohio	3,819,635	2,676,640

RECENT DEVELOPMENTS IN NEW YORK MARKET

Now that we have covered to a certain extent, the building situation as left by the year of 1916, our attention might well be turned to a consideration of the more recent occurrences in the brick and building materials market. During the week ending January 20th, New York suffered no great fluctuations in the prices of building materials, altho all materials have been in strong demand. A marked feature is the fact that Raritan river commons are being quoted for immediate delivery within twenty-day periods at $9.25. For a long time Raritans were unobtainable in the open market. There were available in New York during that period approximately twenty million Hudson river commons and barely 225,000,000 in the manufacturers sheds. Freight congestion at that point is holding many important operations in abeyance since the delivery of building materials and supplies is seriously delayed. Weather conditions are exceptionally good and the open winter is another reason for the excellent condition of building.

CHICAGO PREDICTS FACTORY BUILDING BOOM

A report made to the directors of the Illinois Brick Company by its president, William A. Schlake, carried the message that Chicago will have a factory building boom during 1917, due to the fact that the phenominal growth of many small businesses at this point during the last two years has made their present quarters too small. Consequently, it will be necessary for them to erect their own factories and buildings. "I am very optimistic as to the future prosperity of the building industry," said Mr. Schlake, in his report.

Running true to its old form, the month of January is making no dazzling records in the city of Louisville, Ky. Some of the retailers, as well as the manufacturers carried business over from last year and practically all of them see a good deal of work ahead. Architects' offices are full of work for the coming season, and the next few weeks are expected to see the development of many important projects that have been pending for some time. The car shortage and fuel situation are still of menacing proportions, in spite of the efforts of the Interstate Commerce Commission to relieve the situation.

The demand for clay products along the Pacific coast has enjoyed a healthy growth during the past few weeks, and terra cotta manufacturers are beginning to feel greatly encouraged over the favorable outlook. Face-brick conditions are fairly satisfactory, but the demand will have to show more activity before the situation can be termed optimistic. The valuation for building permits in California in December total slightly more than those for November, but the larger cities show a falling off in the value of building in the later period.



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requires only one man to operate it, will work regardless of bad weather, any capacity desired. It is perfect in construction, simple to operate, maintenance cost is low.

Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

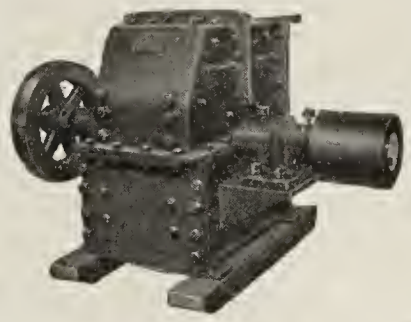
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K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.



Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

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PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

Produces absolutely uniform heat and reduces fuel consumption. Keeps the heat where it is productive. The reduction in rejected pieces will pay for the insulation in the first month of operation.

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Louisville, Ohio

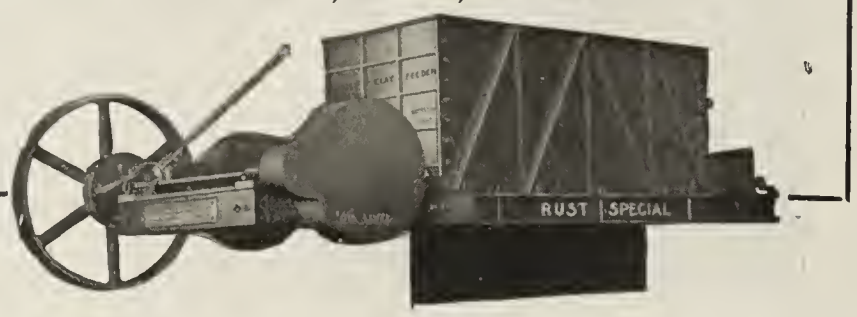
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Prevent that "slip" by using "SERO" Belt Dressing on your belts. "SERO" Belt Dressing is not only guaranteed to **prevent belts from slipping,** but also to **prolong their life.** It is the ideal Dressing for clay working plants, as it **does not gather dust** like a great many Belt Dressings on the market today.

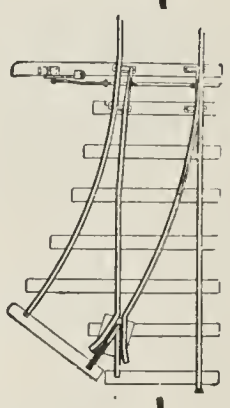
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Everything in switches, crossings, frogs, switch stands, rail braces, tie plates—ready to be shipped promptly on receipt of your order.

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Doors can't warp or get out of shape—easy to operate—only one carrier needed for each battery of doors.

Made for doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.

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IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Manager F. H. Young of the Wilson (Conn.) Brick Company, has gone to Swansborough, N. C., for the winter.

At the annual meeting of the stockholders of the Alton (Ill.) Brick Company, held at Illini Hotel recently, Edward Rodgers was re-elected president, and Eben Rodgers secretary and treasurer.

Ben Fisher, an old Columbus (Ohio) brick man, formerly superintendent of the Union Furnace plant of the Columbus Brick and Terra Cotta Company, but now a salesman for F. B. Holmes and Company, Detroit, was a recent visitor in Columbus.

W. J. Watkins, independent jobber of brick and building supplies, Louisville, Ky., was shaken up but escaped with bruises when another automobile crashed into the rear of the electric limousine in which he was riding recently with his son-in-law, E. B. Dye.

The stockholders of the Lawrenceburg (Tenn.) Pressed Brick Company met early in January and elected the following officers: Chas. I. Schade, president; Wm. Boulie, vice-president, and Joseph Boulie, general manager. This company was organized five or six years ago and has had good success, making 20,000 dry-press brick daily.

At the annual meeting of the stockholders of the Alliance (Ohio) Brick Company, the directors and officers of 1916 were all re-elected. The directors again chosen are F. A. Hoiles, R. M. Stranton, W. H. Purcell, E. L. Guthrie, W. E. Dunning and L. W. Lewis of Alliance, and J. A. Jones of Akron. The company enjoyed an unusually good year and the directors declared a dividend of six per cent.

James Farrell recently severed his connections with the Old Bridge (N. J.) Enamel Brick and Tile Company as its middle and western states' representative, and has been succeeded by F. R. Matson. For the past five years Mr. Matson has been connected with the Chicago office of the William H. Jackson Construction Company, and is familiar with all branches of tile work.

Captain R. L. Queisser of the Queisser-Bliss Company, Cleveland, Ohio, has returned to the Mexican border to arrange for the departure of his command to its home city. Captain Queisser will bring back with him a collection of two-toned jaspers, opals and smoky topazes, which he picked up in the border districts. He had them cut by a Texas lapidarian and will have them mounted in Cleveland, giving them to his friends as souvenirs.

Alabama

J. B. Hammond and Company of Bolivar, Pa., recently purchased the old Fort Payne (Ala.) fire-brick plant and will remodel it, resuming operations in a short time. The plant was built by Boston capitalists. It is said that the capacity may be increased to 300,000 brick per month.



Arkansas

The Arkansas Brick and Tile Company of Little Rock, Ark., recently purchased the brick plant at Perla, Ark., together with fifty-eight acres of clay land, for $20,000. The company's two plants, it is reported, are to be merged and many improvements made in both. T. N. Atchison, former owner of the Perla plant, will continue to manage operations at that point.

California

Notice has been given that the Sacramento (Cal.) Clay Products Company has been incorporated.

Samples of brick made from clay found in deposits near King City, Cal., have proved of splendid merit, being first class in finish and quality. Interested parties have investigated the matter and it is expected that a manufacturing plant will soon be established at King City to place the brick on the market.

Earlier reports that the plants of the California Brick Company, located at Decoto and Livermore, are to be enlarged have been verified. Improvements and extensions that will cost approximately $100,000, are to be made during the first few months of 1917. The business enjoyed by the California company during 1916 was nearly double that of 1915.

It is probable that the Board of Public Works in Los Angeles, Cal., will shortly recommend that the city specifications be changed to permit glazed cement pipe to be used in public work the same as clay pipe. The application was made originally by the California Glazed Cement Pipe Company and the Board of Public Works now has the matter under advisement.

The Los Angeles (Cal.) Pressed Brick Company has requested the Board of Public Works to change the city specifications so as to permit the use of a new radial interlocking brick in certain classes of work. The company claims that this type of brick is suitable for conduits of any size and for the construction of flush tanks and manholes. The matter has been referred to the city engineer.

The Denison Block Company of Sacramento, Cal., has been somewhat handicapped of late by reason of the labor unions demanding that a dollar extra a day be paid to bricklayers for laying the company's product. This was regarded as an unfair discrimination, but now as the price of common-brick has been raised a dollar a thousand in Sacramento, the company is still able to compete on a fairly satisfactory basis.

The manufacture of vitrified paving-brick was recently started by the Pacific Tile Works of Tropico, Cal. Mr. Balch, manager of the company, looks forward to a very big demand for the new product and anticipates that at least twelve more men will have to be added to the working force of the plant early in the year. George C. Little, a pioneer brick manufacturer on the Coast, is superintending the manufacture of the new product.

A large hollow-tile building, measuring one hundred by two hundred feet, has already been erected at the new plant of the Los Angeles Pressed Brick Company, Alberhill, Cal. This structure is used for hand work and special designs of brick. Forty-five men are now at work at the new plant and this force will shortly be more than doubled. The town of Alberhill is not being built cheaply, as one would expect of a new settlement, but the post office building, school and stores have been erected of lasting materials, clay products being used for the most part.

ORIGINAL Boss SYSTEM
COMMON SENSE APPLIED TO
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Boss Ten-Hour Dryer

Would you like to really dry your brick and do it in half less time?

Boss System of Burning Brick

Would you like to improve the quality of your brick and reduce your cost of burning?

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All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

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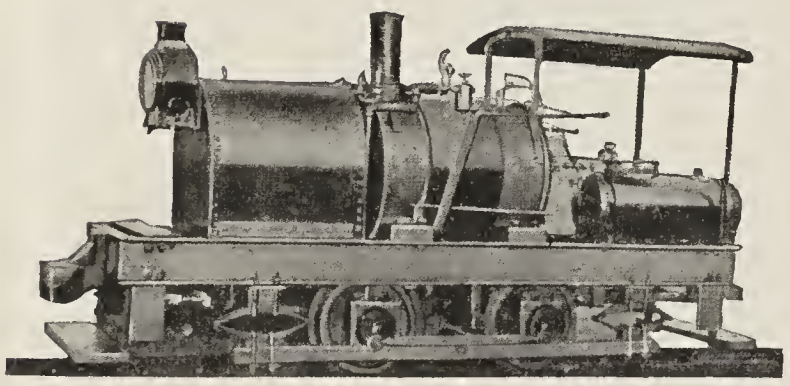
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Kerosene is about 9c a gallon—why not use it to run a BELL Steam Locomotive on your job? —**Particularly** as you can dispense with a licensed engineer and pull 50% more than other steam outfits. **Furthermore**—the first cost of the BELL is lower.

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Eight cents per word for first insertion; six cents per word for each additional insertion.

BRICK AND CLAY RECORD

Like most American cities with great natural beauties, the people of San Francisco neglect to make the most of them. The water front in the neighborhood of the Ferry building, that city, could easily be improved to a wonderful extent at a comparatively small expense if the area was paved with brick. It is gratifying to note that a project is being agitated to have the Embarcadero paved with vitrified paving-brick. Tho the traffic is very heavy along the water front, it is believed brick would prove more satisfactory than the rough basalt blocks now used.

The Pacific Sewer Pipe Company recently installed at its No. 4 plant located at Los Angeles, Cal., two nine-foot dry pans and erected two additional kilns. It has also increased the capacity of its clay sheds fifty per cent. and has installed an elevated track for dumping the clay. While the brick and sewer-pipe manufactured at this plant has not enjoyed a very active movement for the past few weeks, the demand for conduits has shown a very rapid increase, while business in stoneware has increased one hundred per cent., which is due to the decrease in the amount of stoneware brought in from the East.

The California Clay Corporation of San Francisco, which company has been organized to manufacture fire-brick, sewer-pipe and other clay products from raw materials taken from deposits in Amador and Sacramento counties, on which a lease has been secured, has been permitted to issue five hundred shares of common stock to Arthur S. Cunningham in exchange for the lease, and to sell preferred stock with a bonus of one share of common stock for each share of preferred, par $100 per share, to net the company not less than eighty-five per cent. of the selling price. It is estimated that approximately $85,000 will be required to install machinery and place the concern on a going basis. For that reason the company is required to secure subscriptions for not less than five hundred shares of preferred stock on or before June first, 1917, before any part of the subscriptions are available for use.

Colorado

Having experienced one of the most successful and active years of its existence, the Denver (Colo.) Pressed Brick Company is planning to even eclipse the records of 1916 by its activities during 1917. For the last two years, this company has operated to capacity, finding a ready market for its entire output.

Connecticut

The question as to whether Sutcliffe N. Widdup, who bid in the property of the Composite Brick Company of Farmington, Conn., at a bankruptcy sale last November, is entitled to a deed of the property on the strength of having paid in his cash bid of $100, was before Edward M. Yeoman, United States referee in bankruptcy at Hartford, recently. Loomis A. Newton of Hartford, trustee of the bankrupt estate, contended that the property was sold subject to unpaid taxes and insurance premiums, and that until these incumbrances were paid, he was not obliged to give Widdup a deed. Referee Yeomans, after hearing a number of witnesses on both sides, denied the motion brought by Widdup seeking to compel Newton to give him a deed. Widdup was acting for G. W. Raymond of Brooklyn, N. Y., and it was announced that he would confer with the latter, and if he does not care to pay the incumbrance, the $100 already paid will be returned and the purchase will be forfeited.



Georgia

Albany's (Ga.) new auditorium and many other brick buildings erected in that city during the past six years have been built of brick manufactured by the Flint River Brick Company, which is now operating on full time at Albany. In 1910 two brick plants, then in operation in Albany, were merged into the Flint River Brick Company and a modern equipped plant of 60,000 brick daily capacity was erected on the Blue Springs road southeast of the city. Here are manufactured a high-grade building brick which is in great demand among contractors. The company especially caters to Florida, Georgia and Alabama trade. P. J. Brown is president and C. M. Shackleford is vice-president. The general offices are at 124 Pine street, Albany.

Illinois

Plans are being laid by the Alsey (Ill.) Brick and Tile Company to install sufficient machinery to raise its capacity from 20,000 to 40,000 brick a day. It is reported that a new dryer, four additional kilns and another brick press are to be installed. W. T. McLaughlin, owner of the plant, has constructed twelve brick cottages for his employes and plans to erect twelve more during the coming summer.

Indiana

The Hoosier Clay Products Company of Hillsdale, Ind., has filed incorporation papers with the secretary of state to engage in the manufacture and sale of clay products. The capital stock is announced at $225,000. The directors are D. S. Strong, W. E. McKee and R. W. Sutton.

A large number of men are now at work making extensive improvements at the plant of the Indiana Paving Brick and Block Company, Brazil, Ind. All of the old frame buildings are being replaced with brick structures and new machinery that will double the capacity of the plant is soon to be installed.

Building statistics for 1916, completed by Henry Hudson, clerk in the office of the department of buildings, shows there was a gain in building operations in Indianapolis, Ind., of $1,841,397 over 1915. This is the largest net gain ever made by the city in one year. The value of new buildings erected in 1916 was $8,935,039, as compared with $7,093,642 in 1915.

A deal has recently been closed, whereby the Clay Products Company of Brazil, Ind., obtained possession of the plant of the Brazil Face Brick Company, which will be placed in operation shortly, manufacturing hollow building tile. The Brazil Face Brick Company's plant has not been operated since the strike was declared last spring, but the Clay Products Company signed a contract with its men and has been working continuously since.

Iowa

The unfriendly relations existing between the Plymouth Clay Products Company of Ft. Dodge, Ia., and its employes, caused by the company lowering the wage scale about a month ago, were patched up at a meeting of the workmen recently, when they unanimously agreed to accept the terms offered by the president of the company, Mr. Armstrong.

At the annual meeting of the stockholders of the Kalona (Iowa) Clay Company, F. X. Freyder was elected president for the coming year, M. C. Bridenstein, vice-president, G. W. Schmidt, treasurer, and W. T. Goodwin, secretary. These officials, together with S. T. Morrison and Hughes W. Smith, will comprise the board of directors for the coming year. The annual meeting found business in a very optimistic con-



THE plant is at Canton, Ohio, but the bricks are used pretty nearly everywhere. "Metropolitan" is stamped boldly on the side of every one of them—*burned in to stay*, because the makers' quality makes the brand stand for something. Now

"MARIONS" Take Out the Clay for 200,000 "Metropolitans" Daily

—and as a proof of their respect for the way our Shovels do things, the Company has recently bought another "Marion"—their fifth—with the encouraging comment that if they need more equipment, "more 'Marions'" would be their choice.

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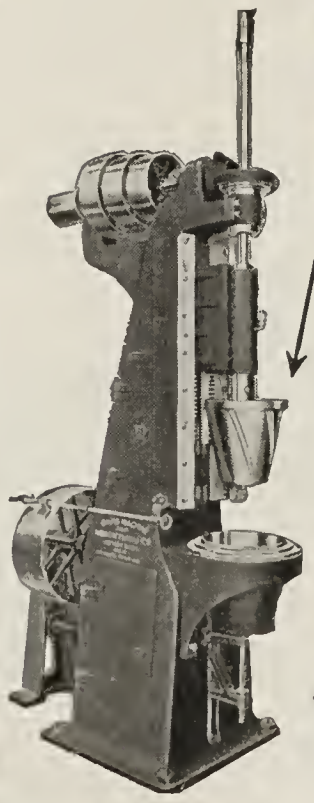
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Baird Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

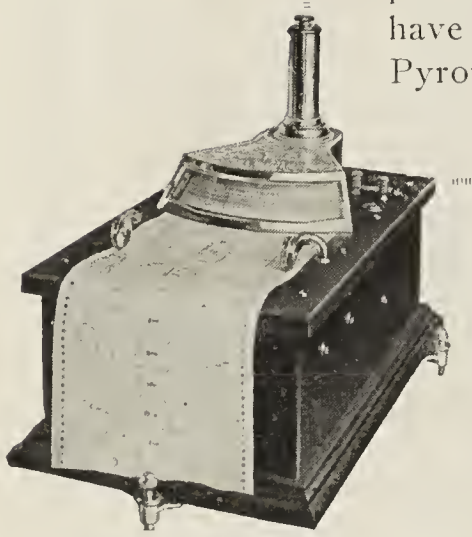
Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

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We would be glad to furnish you with the names of users, so that you can investigate for yourself on some of the largest plants in the world, just what to expect in results after you have installed Price Pyrometers.



The Price Electric Co.
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The New Sewer Pipe Truck

Differently designed—built better than ordinary—with the same care, the same skill, and of the same excellent materials of which we have long designed and built Toronto Machinery, from Sewer Pipe Presses to Dry Pans and Wheelbarrows.

This Pipe Truck is built in 3 different sizes. No. 1 handles 18", 20" and 24" pipe. No. 2 handles 27", 30" and No. 3 handles 33" to 36" pipe.

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Toronto Foundry & Machine Co.
Toronto - - Ohio

It will save from 1 to 3 men according to size of pipe

dition, the company having enjoyed an unusual period of activity during the past season.

Kansas

Three men were killed and three others injured when a kiln, upon which they were working at Buffalo, Kan., collapsed.

The Fredonia (Kan.) Brick Company, according to Mr. La Dow, has been doing a nice business for the month of January. The business has been rather heavy in some lines and the plant is working almost to capacity.

Kentucky

H. K. Leighow, manager of a fire-brick plant at Haldeman, Ky., is superintending the construction of an addition to the plant.

At Barbourville, Ky., the Barbourville Supply Company has been incorporated, with a capital stock of $50,000, by C. P. Kennedy, R. H. Hewett and Thomas D. Tinsley.

H. H. Frazier, salesmanager for R. B. Tyler Company, Louisville, Ky., has several men out in the state who are sending in orders for summer business. Mr. Frazier stated that 1916 showed an increase of fifty per cent., in all lines, over 1915.

Robert B. Franklin of Whitesburg, Ky., a retail building supplies dealer, shot and killed C. C. Huddleston, a lumberman of Huntington, W. Va., on a train near Huntington, and then committed suicide. Franklin owed Huddleston for a bill and the latter had attached and closed Franklin's business.

The P. Bannon Pipe Company, Louisville, Ky., is shipping out of town to a number of good hollow-tile jobs as rapidly as it can get the cars in which to make the shipments, according to A. P. McDonald, salesmanager for the company. There are many new jobs ahead and the company is figuring on much work. M. J. Bannon, president of the company, is on a business trip in the North.

Leo M. Parsons of the Tyler Building Supply Company, Louisville, Ky., is another optimist about this year's business. Some orders are being booked for immediate delivery, altho the company is working for the most part on later business, to be handled after the season opens. Added to this will be a nice volume of business which was carried over from last year.

Except for several days when Kentucky was suffering from the worst storm of twenty years, the drain laying work done under the direction of T. Bishop of the Southern Brick and Tile Company, Louisville, has continued uninterruptedly, while there is enough work ahead to keep the company going until the summer operations on the land closes this branch of the work down. Tile drainage is increasing in favor in the state and Mr. Bishop works as many men as he can get. It takes about six months to train a foreman for this work. Mr .Bishop is looking forward to a good year in the brick line.

Leading building contractors of Louisville, Ky., have or are granting an increase in wages to the union bricklayers of the city, which averages from 65 to 70 cents for an eight-hour day. The advance followed the presentation of the demands of the workmen, Bricklayers' Union No. 1, before a group of contractors. John F. Scott, president of the union, set forth the demands of the men and among the contractors present Alfred Struck, one of the leading operators, agreed to the advance. J. P. McKeown, another con-



tractor, had previously met the situation by a voluntary advance based on the needs of the men facing high cost of living levels. With the leaders approving the advance, others will more likely get in line.

Suit has been filed in Louisville, Ky., to foreclose a mortgage of $7,500 against the plant and property of the Louisville Brick Company, one of the established brick manufacturing concerns of that city. This action, brought by the German Insurance Bank and the Fidelity and Columbia Trust Company of Louisville, on notes for $7,100 and $400, followed a judgment given against the company on the suit of the Jellico-Laurel Coal Agency and levying on the property by the sheriff. Increasing costs of manufacture and the low market which has been faced by the company for some time brought its difficulties to a head. Joseph Nevin is president and manager of the company; J. Guy Nevin, vice-president, and M. J. Bannon, secretary and treasurer. It has been decided to sell the property on which an estimated value of $50,000 is placed.

The Kentucky Fire Prevention Association, which is paying especial attention to construction in the smaller cities that have not been provided with paid fire departments, has organized for a campaign which promises to get results and further the influence of the organization on the side of brick and tile construction. It has been the custom heretofore for the organization to hold twelve meetings a year at which all should attend. This year, however, eighteen meetings will be held, three in each of six districts into which the state has been divided, each district being in charge of a committee of the membership. The local agents of the fire insurance companies and the field men will conduct these meetings which will in general be committee meetings with the city officials and the leading property owners instead of public meetings which have not heretofore resulted in the good that might have been expected.

There has been no let-up in the demand for fire-brick and similar products. J. H. Bell, salesmanager for the Louisville (Ky.) Fire Brick Company, who has just returned to work after a week's illness brought on by strenuous efforts to make and ship three or four brick where the factory and shipping capacity would take care of only one, sees no likli-hood of a let-up for the whole year. In fact, he stated that the company is booked away into the summer and is now taking orders for June and July deliveries, while it is finding itself unable to bid on much attractive business that is being offered. Mr. Bell is taking a close interest in the efforts of the Interstate Commerce Commission to help the shippers out of the existing car stringency but, mindful of past experiences, he is skeptical about any really good results being obtained and is making preparations to get thru the most of the year at full tilt but under shipping handicaps.

Louisiana

A large steam tug was recently purchased by the New Orleans (La.) Silica Brick Company, for use in handling its fleet of sand barges across Lake Pontchartrain. This company, which was organized but a few months ago, has its plant established on the bank of the New Orleans Basin Canal, and altho in operation only a short while, the demand for its product is said to be so great that its plant is operated day and night. New offices are soon to be opened by the company, which will contain an interior office display built of the brick manufactured by the company.

The problem of maintaining tight valves is most effectively solved --when you equip with--

Jenkins Bros. Valves

Considering the service, they are more economical and far superior to the common metal seat types. Jenkins Bros. Valves have no metal-against-metal contact of seat; instead, there is the combination of brass raised seat and Jenkins renewable composition disc. The labor of regrinding is obviated. When repair is necessary, simply insert a new disc at expense of a few cents, and you have practically a new valve. Any dealer can supply. All genuine have diamond trade mark, as shown in the cut.



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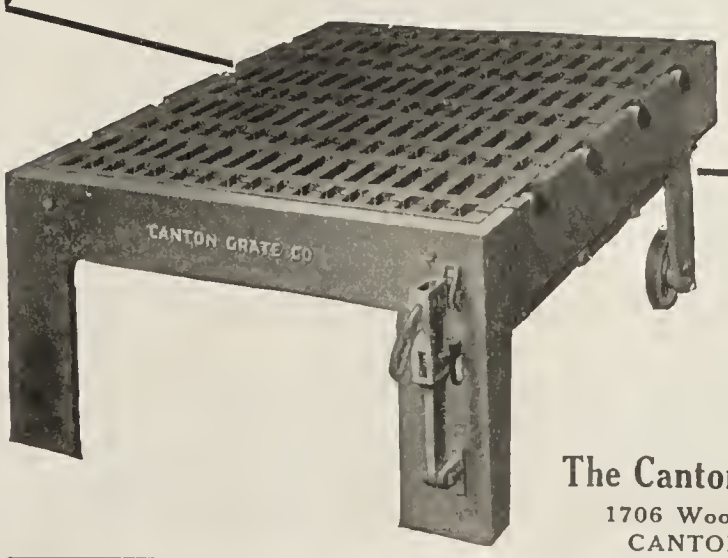
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With these grates it is possible to burn less fuel and to use a cheaper grade—attaining an even, uniform flow of heat.

The total of the two savings has reached over 40 per cent of the former fuel bill on one fire brick plant.

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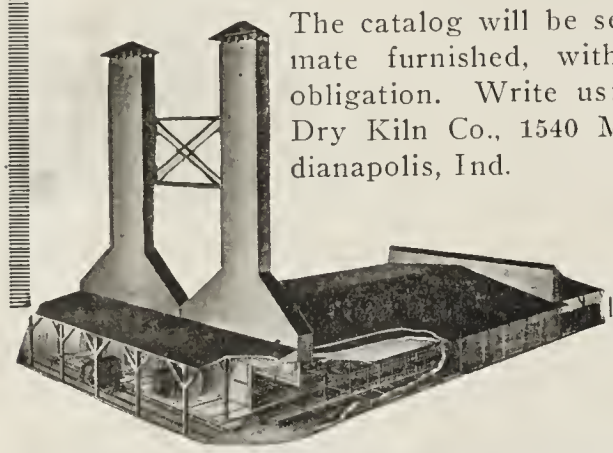
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10 Minutes Walk to 40 Theatres

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Formerly with Hotel Imperial

Only New York Hotel Window-Screened Throughout

Maine

At the annual meeting of the Minnesota Farmers Brick and Tile Company, held on January 8th at Augusta, Me., it was voted to change the name of the corporation to the Austin Brick and Tile Company.

Maryland

The Savage Mountain Fire Brick Company of Frostburg, Md., held its annual meeting on January 17th and elected the following officers for the current year: Charles C. Gorsuch, chairman of the board, John A. Caldwell, president and treasurer, and W. F. Caldwell, secretary.

Missouri

The plant of the Hydraulic-Press Brick Company at Kansas City, Mo., is still closed for repairs and remodeling. This work will not be finished until late in February or early in March it is said.

The work on the Kansas City (Mo.) Brick Company's plant, which company was recently formed here, is progressing rapidly and it is likely that the company will open sales offices at Kansas City early in February. The plant is being built at Vale, Mo., sixteen miles out of Kansas City.

H. H. Crowell, salesmanager for the Hydraulic-Press Brick Company at Kansas City, reports that the business at that point has been increasing nicely during the month of January. "In fact business has been better than could have been expected at this season of the year," Mr. Crowell says.

According to G. W. Thurston, secretary of the Western Paving Brick Manufacturers' Association, with offices at Kansas City, the plants of the paving-brick manufacturers have been and are working to capacity and have enough orders on file to keep them busy for almost the entire next twelve months. The demand for paving-brick, it is said, has increased tremendously in this locality.

According to recent reports, there will be a general increase in the price of brick in Kansas City and that vicinity very shortly. Some companies, including the Kansas Buff Company, have already increased their prices. Others declare that they will follow suit immediately. The reasons given for the increase in prices are that the manufacturers are facing further handicaps in the car shortage problem and that the price of coal and material has advanced to such an extent that the cost of production demands increases in prices of the articles from five to twenty per cent.

There has been much discussion in the trade at Kansas City in regard to price cutting by several companies when figuring upon certain work in competition with other companies, but there seems to be little truth in many of the assertions that have been made. As an instance of the spirit of co-operation existing at this point, one company was recently called on to submit figures for twenty-five thousand brick of a certain color for immediate delivery, which it would not have been able to furnish within sixty or more days. However, the order was taken, with permission to substitute the brick of another manufacturer, and turned over to a competitor—with no charge for commission. Thus, it can be seen, that for all the statements in regard to price cutting, there is still a feeling of good fellowship and honest competition among the brick companies of Kansas City.

Montana

The third kiln of brick burned during the past season was recently opened by the Roundup (Mont.) Brick and Tile Company, according to Superintendent Storer of that



concern. About ninety-four thousand brick were burned in this kiln.

Nebraska

Advances of from one to three dollars a thousand on all building brick have been announced by Omaha manufacturers and retailers. Common red brick that was sold until recently at $7.75 per thousand is now $8.75, and face-brick prices have advanced correspondingly. The increased cost of fuel and labor are the causes of the recent advances, according to A. B. Klein, manager of the brick department of the Sunderland Company.

New Jersey

Charles Bistrack of West New York, charged with holding up, assaulting and robbing Herbert C. Mehrhof, treasurer of the Mehrhof Brick Company of Little Ferry, N. J., of $1,995 last summer, was tried on January 15th and convicted. The prisoner is represented in the testimony concerning his previous doings as being an unusually desperate character and the sentence he gets will make many breathe easier. He held up Mr. Mehrhof when the latter was going to the plant with money to pay the men. In the struggle Mr. Mehrhof's fingers were nearly severed from his right hand, and as a consequence, it will never be capable of perfect use again.

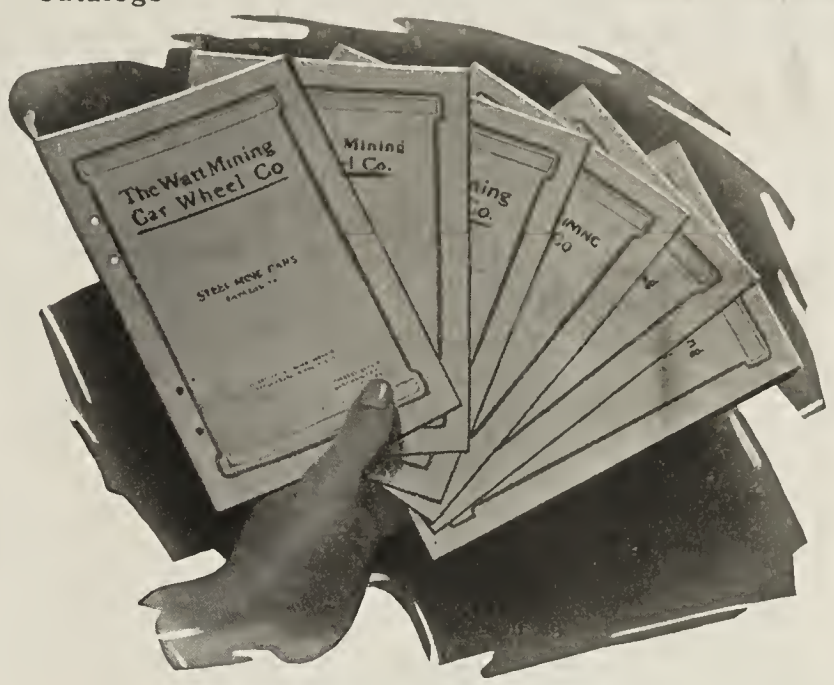
The Kingsland (N. J.) Brick Company was destroyed in the explosion and fire which razed the munitions plant of the Canadian Car and Foundry Company adjoining it early this month. The loss was variously estimated, but probably amounted to from $30,000 to $50,000. The plant was owned by D. B. Kinney of New York. No intimation has been given yet as to whether it will be rebuilt or not. It was one of the few plants in the East that made brick of ground shale and was an all the year plant. Orders have been plentiful during the past season and A. M. Kranz, Paterson representative, says that it had a considerable number of good-sized contracts on hand when it was destroyed. The men were at work when the explosion sent a shower of shells thru the roof and among them. Many did not stop for their lunch buckets and outer clothing when they left the building.

The Hackensack River in New Jersey is closed and all shipments of brick have stopped for the season. Manufacturers say that they have very few left to open the coming season and these are mostly under contract at high prices. The season was generally good, altho owing to labor, difficulties and the high prices they were forced to pay, a reduction in profits was suffered. Still, their product sold as soon as made at high prices and they could have disposed of more if they could have made it. Not all the yards in this vicinity operated to capacity, chiefly because of the labor difficulties. But the output was well up toward normal, notwithstanding the scarcity of labor and other disturbing features of the business. Cost of production has increased in recent years because of the fact that the clay has to be dug from deep pits. The plants are all alongside the river, and in each instance, the pit is below the level of the stream; in nearly all instances below the bed of the river. This necessitates steady pumping to keep the pits clear of water. Most of the yards use electricity for pumping which has proved to be the cheapest power they can obtain.

New Mexico

Manager Burkett of the Ancho (N. Mex.) Brick and Tile Company recently made a business trip to Carrizozo, N. Mex. Mr. Burkett reported an unusually large output for the past year, and looks forward to a rapid development of his company.

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These are yours for the asking.
Write today for them.
We manufacture

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of every description.

The Watt Mining Car Wheel Co.
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Best Belting for Clay Plants

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BEIGHLEE

The pyrometer that contains features truly distinctive, and as near errorless as human ingenuity can make it.

It has an eighteen inch dial, it has a compensating device and a high internal resistance.

It surely is equipped with a "conscience," for it tells the truth always.



Beighlee Electric Co.
Cleveland, Ohio

Herman A. Holz, Hudson Terminal Bldg., New York. Representative in New England States.

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —the **dependable brand.**

Write for circular and prices.

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We carry a complete line of high grade chemicals for the clay industry

New York

December, 1916, saw the passing from the brick carrying trade of the last of the fleet of vessels that made regular trips from the Hudson river brickyards to points on Long Island Sound, Rhode Island and Massachusetts. The schooner referred to was the "Mary Buckley," built in 1883 by the late Captain John Dunn and owned continuously by him until his death last June.

North Dakota

It is rumored that business men of the Commercial Club at Hazen, N. D., are interested in establishing a brick manufacturing plant in that city. Local capital, it is reported, is to be used exclusively in the development of the new enterprise, which will enjoy an abundance of suitable clay and favorable shipping facilities.

Ohio

The Mohawk Clay Products Company of Perrysville, Ohio, has increased its capital from $75,000 to $125,000.

One of the first street lettings of 1917 in central Ohio will be held at Columbus on February 13th, when the authorities will open bids for the improvement of approximately twenty streets, a large proportion of which will be paved with brick.

The North Baltimore (Ohio) Clay Company has been incorporated with a capital of $40,000 to manufacture clay products. The incorporators are: William W. Lewis, Charles C. Lewis, Henry J. Everitt, Isdora M. Ellenwood and John G. Wilt.

One of the heaviest drawbacks to a larger production of brick at the various plants in the Buckeye state is the shortage of coal. All of the plants, with the exception of those that have their own coal supply, are experiencing difficulty in keeping their plants going at full time.

As part of the general movement in Cleveland to push the sale and use of fireproof building materials, the Cleveland Builders Supply Company of that city is now using large space in the local newspapers to arouse interest in face-brick. Emphasis is laid upon the fact that all shades and textures of face-brick are ready for immediate delivery.

The Builders Supply and Fuel Company, Cleveland, Ohio, has taken an option on land at Euclid avenue, Strathmore avenue and the Nickel Plate tracks, East Cleveland, where it contemplates the establishment of a yard for the distribution of sewer-pipe, coal and other products. A switch from the railroad to the property is planned.

Papers have been filed with the secretary of state reducing the authorized capital of the Ironclay Brick Company of Columbus, Ohio, which operates plants at Shawnee and in other parts of Ohio. The reduction was in the common stock, the issue being cut down from $200,000 to $100,000. The preferred stock totaling $100,000 is unchanged.

Stockholders of the American Sewer Pipe Company, headquarters of which are at Akron, Ohio, have been advised that a net profit of approximately $206,000 has been made by the company from its 1916 business. During the old year the company paid two dividends. Another has been declared on a basis of fifty cents per share payable on March 20th. The gross earnings for the year, according to the report, totaled $534,466.20, while the net profit was announced as being $206,984.47.

According to present indications, many miles of brick pavement will be laid in Ohio during the coming summer. County commissioners are rapidly coming to realize that no material other than brick will withstand the heavy auto-



mobile traffic. Hancock county will complete the Dixie Highway this summer with a stretch of twelve miles of brick pavement. Seventeen miles of road from Findlay to Carey, which are to be improved, will also probably be laid with brick, which will be the material used on part of the Columbus-Sandusky pike.

Charles Harrison of the Gaddis-Harrison Brick Company, Columbus, Ohio, in speaking of conditions in the brick business said, recently, "The market is now beginning to open up and prospects are unusually bright for this time of the year. Everyone appears to be feeling good about the situation and the indications are for an active building season when the weather clears up. The car situation is still bad and there is no improvement on that score to report. There is also a shortage of labor of the right sort. Brick manufacturers have had to import labor, much of which has been inexperienced. Bad weather has been cutting down production to a large degree and it is now only about fifty per cent. of normal."

Several important meetings of state associations with which brick dealers are connected were held in Columbus, Ohio, during the third week in January. One of these organizations was the Ohio Builders Supply Association, consisting of about four hundred and fifty dealers. The meeting was held at the Southern Hotel with a large attendance. H. S. Grimes, assistant to the president, was in charge of the program and arranged for a number of interesting papers. Following the meeting of the Ohio Building Supply Association, was the annual convention of the Ohio Association of Retail Lumber Dealers, many members of which belong to both organizations. Brick dealers were prominent in the meetings of both associations.

A meeting of building materials dealers and lumbermen was held at Cleveland, Ohio, recently for the purpose of taking up questions of legislation which are to come before the present session of the Ohio General Assembly. One of the questions to be considered by materials men is that of furnishing supplies to contractors on public works of all kinds. At present there is no protection to concerns furnishing materials to contractors engaged in public work. The bill has been prepared and will likely be introduced in the legislature in the near future. It provides that all contractors on public work be compelled to give a bond which will cover all material and labor bills. The meeting took no action on the mechanics lien, the law at present being satisfactory in every respect.

The wage scale for labor at the face-brick plants in the Shawnee (Ohio) district was signed up late in January and arrangements have been made for the starting of all of the plants. The scale runs for two years, dating from January 1st, 1917, and provides for an average increase in wages of approximately 16½ per cent. The companies affected are the Ironclay Brick Company and the Claycraft Brick Company, at Shawnee, and the New Straightsville Impervious Brick Company at New Straightsville. The manufacturers and representatives of the labor union held a number of conferences before the scale was agreed upon. One of the principal points was the distribution among the various kinds of labor of the increase and the union got into controversy over that phase of the matter. It is figured that the advanced cost of labor will mean an increase of approximately eighty cents per thousand in the product of the various plants.

That Ohio faces a famine in face and common-brick was disclosed at a conference of red brick manufacturers at the Athletic Club, Columbus, recently. Twenty of the twenty-five makers of shale brick in the state were present. Labor conditions, and car and coal shortage were discussed. Re-



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This plant is located in Eastern Pennsylvania—it's a "producer" and it's making good profits for the stockholders.

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"It is but just that we state our success with Cling-Surface. Before its use, we seriously contemplated buying a new engine, because we did not have enough power to run our drop-hammer. After lengthening our belts and applying Cling-Surface, however, we obtained more than enough power to run our hammer and all our other machinery besides."—Wm. Didier Mfg. Co., Racine, Wis.

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83

ports showed that brick plants in Ohio are running at less than half capacity, and at the same time, there is a stock on hand of only sixty per cent. of the orders on file. Usually, at this time of the year, yards are filled with brick and there are no unfilled orders. Often in other years, manufacturers say, they have had double the number of brick on hand to meet the ordinary run of orders. Conditions are very different now and manufacturers are urging customers to make early application for the short supply. Reports from the twenty manufacturers showed that orders booked aggregate about 18,000,000, while their stocks on hand total about 15,000,000 brick.

Pennsylvania

Allegheny county, Pa., will have considerable brick paving work done in the early spring. There is comparatively little concrete road work to be seen in this territory, the predominating material used for this purpose being brick.

The Builders Supply and Manufacturing Company, St. Marys, Pa., has been organized with a capital stock of $40,000 to deal in brick and various other building materials. A. J. and F. A. Hauber, John A. Dippold, and others of St. Marys, are the incorporators.

Giving as a reason the high cost of building materials, the Board of Education, Pittsburgh, Pa., will not proceed with $1,000,000 worth of school construction for at least a year. Three new schools and additions to two others constituted the proposed work. All of these structures would have been built with brick.

James T. Fox of Pittsburgh, Pa., who operates a brick manufacturing plant and a stone quarry, has taken out papers of incorporation under the name of the James T. Fox Company. Others interested in the new corporation include W. H. Bell and Noah McCartney.

The Pittsburgh (Pa.) Brick Company, located in the Bessemer building, has taken ground floor space in the Fulton building of that city, to be used for display purposes. A complete line of face-brick, hollow-tile and other burned clay products is being arranged in very artistic displays at the new headquarters.

South Carolina

It is reported that a new brick manufacturing company is soon to be incorporated at Chester, S. C., with a capital stock of $30,000. Secretary Alfred O. Lloyd of the Chester chamber of commerce is in touch with a company that will locate at that point, provided a suitable site can be secured.

Tennessee

The Kingston Pike Brick Company of Knoxville, Tenn., has purchased the property of the Alexander A. Scott Brick Company, the consideration being $84,999.97. There are forty-three acres of ground in the property.

In the resumè of building work done at Memphis, Tenn., in 1916, the office of Building Inspector Dan C. Newton reports brick buildings erected to the number of one hundred and sixty-five at a cost of $938,745. Permits issued in 1916 totaled 2,439 with a valuation of $2,730,488.

Nashville, Tenn., has a new bank and office building just completed and occupied in which the city is taking a pardonable pride. It has been under construction for the past six months, stands at the corner of Fourth avenue North and Union street, and is the home of the Fourth and First National Bank, the total investment being upwards of $600,000.



The two million brick in the building were furnished by the Fulcher Brick Company. H. E. Parmer furnished and installed the marble, tile and terrazzo work. The six floors are occupied by the bank and offices on the upper floors.

In the devastating fire which recently swept the plant of the Chickasaw Cooperage Company, just outside the city limits of Memphis, Tenn., causing a loss of $400,000, this being the largest cooperage plant in the South at the present time, attention was called in a striking manner to certain brick features. The total loss at this fire would have been considerably more had it not been for the fire-resisting qualities of the brick wall at the storage shed, which is now standing and which protected a vast amount of materials and supplies, as well as the office, valuable books and papers of the company. Some illustrations have been taken by local photographers showing how the brick-constructed portion of the drying room remained intact. Concrete tumbled and iron twisted out of shape, but the brick wall resisted the fire. The Memphis Brick Supply Company, Memphis, Tenn., has drawn attention to the favorable record of brick in the fire by carrying an advertisement in the local papers.

Texas

The Post City Brick and Tile Company is the name of a newly incorporated concern at Post, Tex., organized for the purpose of manufacturing clay products. Incorporators of the new company are J. M. Boren, James Napler and V. A. Robinson.

A company to be known as the Athens (Texas) Brick and Tile Company, has been incorporated at that point with a capital stock of $65,000, to manufacture face-brick and hollow building tile. R. F. Williams, who has been general manager of the Athens Fire Brick Company for the last eight years, organized the company, and is its secretary and treasurer, while C. H. Coleman is president, and George W. Wollford, vice-president. The machinery for the plant has already been purchased, and, according to reports, the plant will be placed in operation about April 1st.

Washington

Victor E. Poilet, salesmanager for the Brick, Lime and Sewer Pipe Company of Spokane, Wash., reports that the new year is starting out with considerable activity. A $20,000 contract for terra cotta has been closed for the new Jones Building at Tacoma, and plans are under way for a similar building at Spokane. The company's terra cotta plant at Clayton is now busy on the Tacoma job which will keep it going until the middle of February. Shipments will begin within a few days. The company's other plant at Clayton, which makes fire, face and other brick with a capacity of 60,000 per day, operated to full capacity thruout the year 1916. The company's common-brick plant at Freeman, whose output has been reduced to 60,000 daily during the winter, will soon resume operating to its full capacity of 150,000. The sewer-pipe, drain-tile and flue lining plant at Spear has now been closed down for repairs after running steadily for ten and one-half months.

Wisconsin

The name of the Acme Brick and Sand Company, Milwaukee, Wis., has been changed to the Acme Brick Company. This company is planning to install additional machinery that will increase its present capacity of 60,000 sand-lime brick a day to 100,000 daily.

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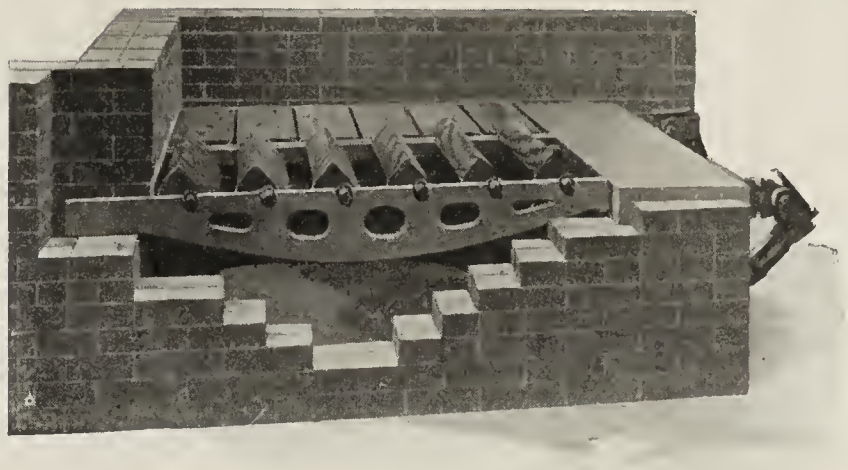
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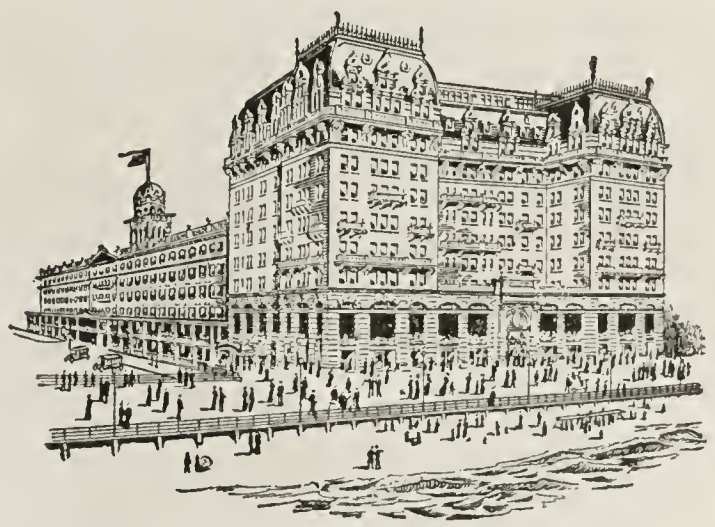
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On the Beach Front **Open All Year**

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EQUIPPED WITH WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

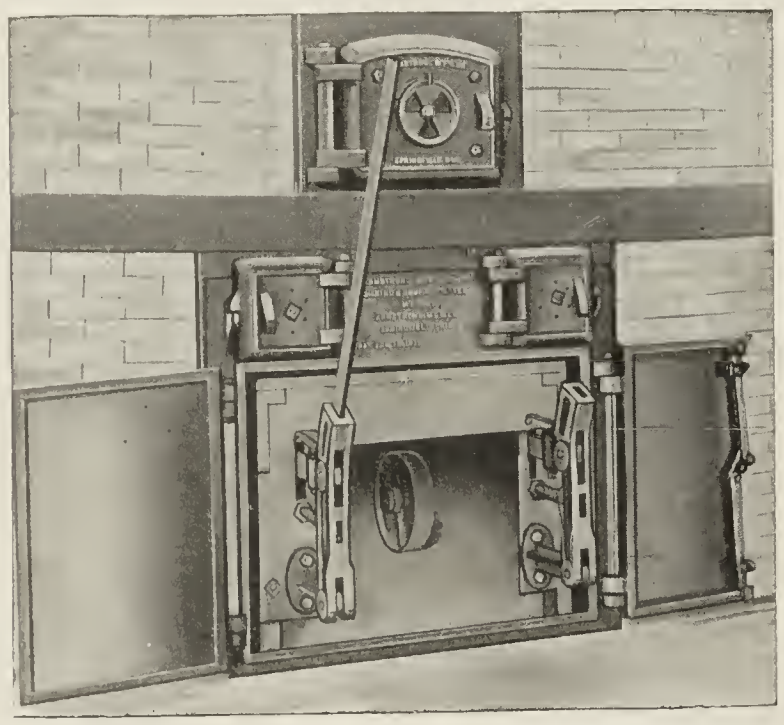
BRISTOL'S ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. Waterbury, Conn.

Branch Offices: Boston New York Pittsburgh Chicago San Francisco



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

With the domestic potteries in the West crowded with business, and the gas supply such that it is impossible to light kilns, general ware pottery manufacturers find themselves confronted with a very serious problem. Thousands of dollars' worth of business placed last spring remains unfilled, and with the accumulation of new business that has been secured during the months of November, December and January, the situation is made more complex. Prices seem to have no effect whatsoever on buyers. Merchandise is being sold today with the understanding that the ware will be shipped as soon as possible and at the prices prevailing at the time of shipment. When that time will be and what price will be asked no one can tell. Prices at the present time are much in advance of those prevailing in January, 1916, and in addition to advance base lists, invoices are billed out with a twenty per cent. increase added. Selling lists are being based upon percentage of production to overcome overhead charges.

At a recent meeting of the directors and stockholders of the Monument Pottery Company, Trenton, N. J., a complete reorganization of the firm's business was consummated and preparations formulated for greatly increasing the volume of business. John F. Wolff of Chicago was elected president of the new concern and Harold W. Wolff, vice-president, George E. Hoffman, secretary, and Franklin L. Wolff, treasurer. In its twenty years of active operation, this company has grown from a two-kiln organization to a concern operating twenty-three kilns. It manufactures plumbers' earthenware fixtures and ships its product to all parts of the United States, Canada and South America. Under the new policy inaugurated by the company, the officers, office force and factory foremen will have monthly conferences to shape the course to be pursued by the company and to create a spirit of co-operation that will interest all branches in the development of the business.

Incidental to the new year and holiday season, forty employes of the Memphis (Tenn.) Queensware Company were entertained by that firm with a matinee party at the Orpheum theatre and a banquet the same night at Hotel Chisca. R. D. Goodwyn, president of the company, and I. Lowenstein, vice-president, took charge of the party and saw that everyone had a good time. Mr. Goodwyn was toastmaster and called for many expressions around the board, the responses being witty and eloquent. This big afternoon and evening is an annual event with the firm and has been observed for the past twenty years. Mr. Lowenstein is quoted as saying that these gatherings are home-like and make a moving picture of the happy family known under the firm name of the Memphis Queensware Company.

The Southern Potteries Company of Erwin, Tenn., will place its seven-kiln plant in operation the latter part of January or early part of February, according to General Manager Edward J. Owen. The output of this plant for the coming year has already been practically disposed of. This is the only new general ware pottery placed in operation inside of eighteen months. Ample provision has been made by the new company to increase capacity as require-



ments demand, the initial plans having been made with this in view.

Full time operations since the first of the year have been the rule at the plant of the Louisville (Ky.) Pottery Company. K. P. Snyder, head of the plant, stated that a year of big business is practically assured. The continued high cost of glassware will insure a good demand for stone containers, and in fact, the company has some desirable orders on which it can run for some time. At this period flowerpot work is getting a lot of attention and the volume of the output is being increased. The concern is continually increasing its line.

Thomas Anderson, a noted ceramist and designer, has assumed the management of the manufacturing department of the Potter's Co-operative Company of East Liverpool. Mr. Anderson was formerly associated with the Edwin M. Knowles China Company and succeeds Lester Bowman, who has taken the management of the Summit China Company of Akron, Ohio. The last mentioned party is, in turn, succeeding Charles A. Bowman, who has taken a similar position with the Carrollton (Ohio) Pottery Company.

Nineteen American pottery lines were displayed this season at the Fort Pitt Hotel, Pittsburgh, Pa., in connection with the annual Glass and Pottery Exposition, which was, according to those who displayed their wares, the greatest display of American dinner-ware ever made at one time. The exhibit continued thruout the month. Over three hundred buyers from all sections of the country visited the display, to place orders for the coming season.

The Hall China Company of East Liverpool, Ohio, has arranged to increase its capacity by using a part of the former plant of the Brunt Pottery Company, which was recently sold at a sheriff's sale. The Brunt plant has not been in operation for a number of years and has been stripped of all chattels, only one building and the kilns remaining. The only line of vitrified fireproof cooking-ware made in the United States will be manufactured at this plant by the Hall Company.

An increase in capital stock from $150,000 to $300,000 was recently made by the Wheeling (W. Va.) Tile Company, which provides for the recent purchase of the property of the former LaBelle Pottery Company, and also for equipment to manufacture electrical porcelain ware. The remodeling of the LaBelle plant for the making of this product is to begin very shortly. It is being planned to have the plant in operation within the next few weeks.

An increase in capacity is contemplated by the Smith-Phillips China Company of East Liverpool, Ohio, to be made thru the erection of additional kilns. According to current reports, a glost and a bisque kiln will be built. The company is now operating to capacity manufacturing dinner-ware.

The Ohio Pottery Company of Zanesville, Ohio, has started the manufacture of a vitrified line of cooking-ware, which has in the past been featured by stoneware potteries. This is the only line of that character made in the Zanesville district.

The Burley Pottery Company of Crooksville, Ohio, has been incorporated with a capital stock of $40,000, to manufacture pottery. The incorporators are: W. L. Burley, Florence Burley, Z. W. Burley, W. N. Burley and S. V. Burley.

For more than a week gas was denied manufacturing potteries in the upper Ohio valley, not even decorating kilns being allowed to be lighted. As a result, heavy losses in production were suffered.

SELF LOADING
ELECTRIC INDUSTRIAL TRUCKS

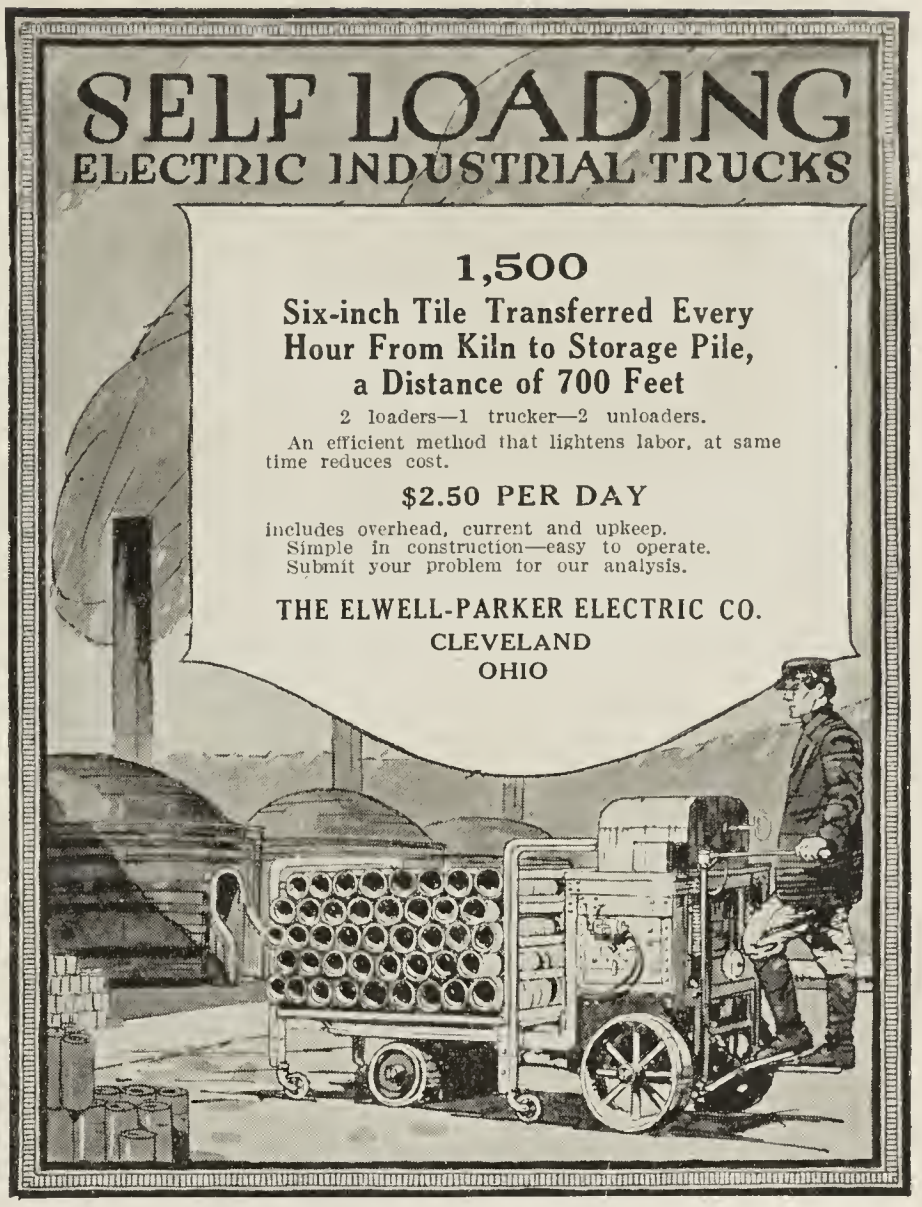
1,500
Six-inch Tile Transferred Every Hour From Kiln to Storage Pile, a Distance of 700 Feet

2 loaders—1 trucker—2 unloaders.
An efficient method that lightens labor, at same time reduces cost.

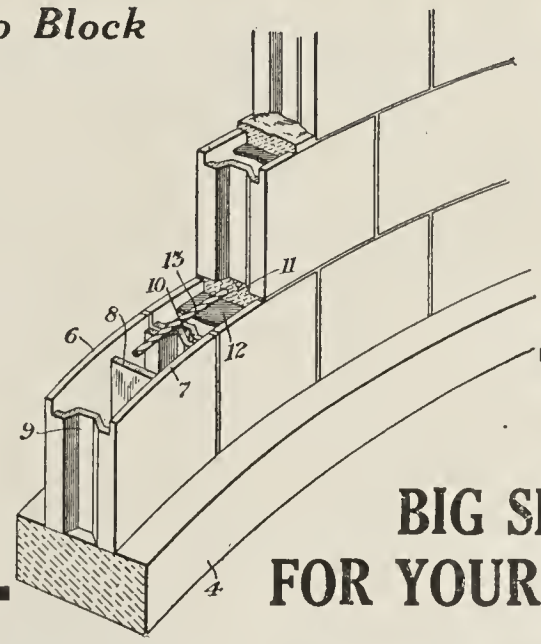
$2.50 PER DAY

includes overhead, current and upkeep.
Simple in construction—easy to operate.
Submit your problem for our analysis.

THE ELWELL-PARKER ELECTRIC CO.
CLEVELAND
OHIO



The Silo Block



THE BIG SELLER FOR YOUR FIRM

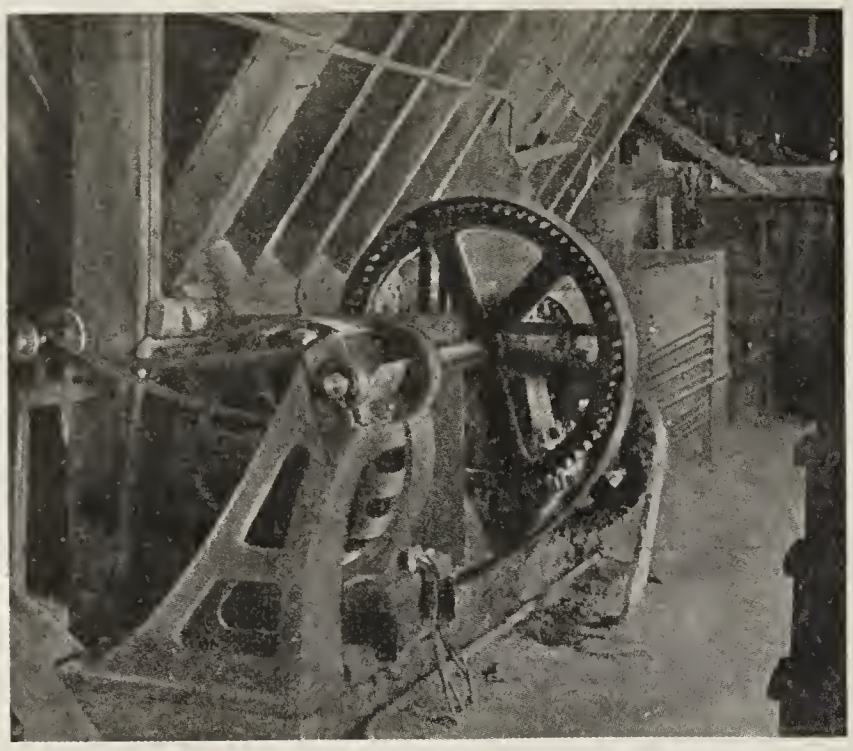
"AJAX" SILO and SEWER BLOCK

Both of these blocks embody new ideas that greatly improve on all present forms of Silo and Segmental Sewer Blocks.

If you are equipped to make hollowware, then you should secure the "Ajax" rights. The blocks sell easily. Write for information.

Southern Pipe and Culvert Co.
Macon, Ga.
Sewer Block not shown here

SAY "I SAW IT IN BRICK AND CLAY RECORD"



"A Nuttall Cut Gear installed in our Plant has outlived three ordinary cast-tooth gears and is still good for long service."

NUTTALL

Cut Steel GEARING

is a distinct forward step in brick machine construction. Any old gear won't do—a cast-tooth gear won't do if you are expecting maximum power transmission.

Cast-tooth gears are power-wasters —they are inefficient through friction and irregularities in tooth construction.

Substitute Nuttall Cut Steel Gears and you'll save on power cost and repairs.

Ask for Bulletin No. 19.

NUTTALL
PITTSBURGH

GLEANINGS *from the* MAIL BAG

Japan Looms Up as Pottery Competitor

Up to the first of December last, exports of porcelain from Japan to the United States reached a total value of $5,000,000, compared with $3,000,000 for the same period in 1915.

E. Holcome, manager of an important eastern retail store, has just returned from a three-months buying trip in the Orient. He learned many interesting facts concerning the remarkable development of business in all branches of manufacturing both in Japan and China. The exporting of porcelain from the kingdom of the Mikado to America is a matter which ought to interest American manufacturers and cause them to investigate the possibilities of that business among the Japanese.

Concerning his visit Mr. Holcome says: "All kinds of business enterprises in the Japanese empire are growing so fast that their exports will become more or less of a menace to similar manufacturers in this country within a very short period. Men engaged in making pottery in that country get no more than fifteen cents a day. It is true that the bug-bear of high cost of living is engaging the attention of the Japanese, as well as others, and wages will have to be raised to meet growing domestic expenses. But it is believed that the advance will be so small as to make no material difference so far as actual cost of production is concerned. American manufacturers will have to consider this new competition in making their plans for future trade extension and domestic sales campaigns."

It seems that the goods which have come from Japan in the past under the head of porcelain included what is known in America as domestic pottery. Some of it is of the moderate-priced class and some bears a higher price. A large portion consists of expensive porcelain for which the Japanese have been noted many centuries past, and another grade is the fancy styles which are distributed in this country very liberally during the holidays.

The high-priced porcelain and the holiday goods will make no material difference with American manufacturers since they are bought principally because they represent a popular form of Japanese art. But the domestic pottery which comes from Japan is more serious and deserves thoughtful consideration. Manufacturers in that country are improving their plants, introducing labor-saving machinery, and some of the best of them are as well equipped as most of those in America. The Japanese people are thoroly aroused to the opportunities which have developed since the outbreak of the war in Europe and are seizing every opportunity to secure the trade in goods that has been lost to Europe.

* * *

Refractories Company's Earnings Jump

President H. W. Croft of the Harbison-Walker Refractories Company, in a statement issued in connection with the annual report of the corporation, said recently:

"While our earnings for the year ending September 30th are gratifying to the officers of the company, they do not fail to take note of the fact that conditions have been abnormal."

The fourteenth annual report of this company, issued for the fiscal year which closed September 30th, 1916, shows net



profits available for dividends amounting to $3,540,604, compared with $1,498,889 the previous fiscal year. The surplus available for common dividends was $2,964,604, equivalent to 16.47 per cent. on the $18,000,000 common stock, compared with $922,889 or 5.12 per cent. on the same stock the previous year. During the year which ended September 30th, 1914, the company showed a net surplus of $548,988 available for common dividends equivalent to 3.05 per cent.

EXTRA DIVIDEND DECLARED ON COMMON

During the last fiscal year the Harbison-Walker Company declared the regular dividends of six per cent. on the preferred stock; regular dividends of five per cent. on the common; and an extra dividend of two per cent. on the common. The company has had no interest charges to pay for the past three years.

The income accounts for the past two years compare as follows:

	Year ending September 30th. 1916.	1915.
*Earnings	$4,305,450	$1,673,790
†Sundry deduct	764,846	174,902
Net profit	$3,540,604	$1,498,889
Prfd. div.	576,000	576,000
Surplus	$2,964,604	$922,889
Com. div.	900,000	360,000
Surplus	$2,064,604	$562,889
Com. div. (extra)	360,000	
Surplus	$1,704,604	$562,889
Prev. surp.	6,842,653	6,279,765
Total surp.	$8,547,257	$6,842,653

*After charging off $685,783 in 1916 and $286,330 in 1915 for all ordinary repairs and maintenance which covers depreciation of plants.

†Deductions for extensions to works, for depreciation of mining and train outfits and for depletion of clay, coal and ganister properties.

Monmouth Association Does Well First Year

For an organization that has been in existence only one year, the Monmouth Manufacturers' Association, composed of clay products manufacturers and others, has accomplished much during 1916. From a few plant managers, the organization has increased greatly during the past few months and is now recognized as one of the most active manufacturers' associations in the Raritan river section of New Jersey.

One of the things first to be tackled by the association was poor shipping facilities. Clay plant heads in Monmouth county experienced great trouble in getting supplies to their factories and also in shipping away the finished products. Several conferences were held, sometimes in conjunction with railroad officials, and while conditions were not entirely bettered, they were greatly improved.

Monmouth county being located on the New Jersey coast, and the fact that several navigable streams run up to the plants, lead the manufacturers to hold the "ship by water" hammer over the heads of the railroads. This aided greatly in achieving the desired results.

During the year meetings were held about every month alternating between Keyport and Matawan. The association's first annual dinner took place in early autumn at Seidler's Beach, which was largely attended by clay men and others.

Greater accomplishments are promised for the coming year. The members of the organization feel that now that they have got a good start they will be able to do

The Loss Due To Faulty Drives

Far Greater Than You Imagine

Here's the Analysis:—

POWER—A horsepower costs the same whether it drives a machine or slips a belt.

BELTING—A slipping belt wears out quickly.

FRICTION—Tight belts mean added load, more fuel, and greater wear on bearings.

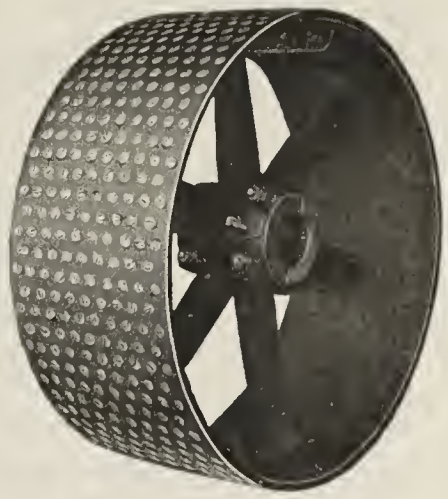
LABOR—A machine requires the same attendance whatever its speed.

COST—Under speed means higher cost,—just that much harder to meet competition.

PRODUCTION—Longer time to produce means less goods to sell,—just so much less profit.

Worth saving, aren't they?

Here's the Remedy



Cork Insert Pulley

Don't say your loss is too small to bother with. Whatever the size of the machine, the proportional loss is the same. It's the little things added together that make a big total.

Hundreds of Users Endorse Cork Insert Pulleys

Manufacturing plants of many kinds have adopted CORK INSERTS because CORK INSERTS transmit **full power all the time.** They operate where other pulleys fail—*in spite of oil, dust, dampness or peculiar atmospheric conditions.* They cut out all the trouble, worry, delay and expense that go with lagging and re-lagging, applying dressing, everlastingly tightening up belts.

Each installation is guaranteed to give entire satisfaction in the place for which it is designed.

Your loss is unnecessary! Why not cut it out right now?

SEND FOR CATALOG showing the widely different uses and economies of CORK INSERTS and how you can save a lot of money by adopting this equipment.

THE SLIP-STOPPING PULLEY

THE CORK INSERT CO.,

168 Federal Street

BOSTON - MASS.

SEND THIS COUPON FOR CATALOG

Please Send Catalog.

Writer's Name

Position.....

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Address.....

SAY I SAW IT IN BRICK AND CLAY RECORD

A Practical Test

The LARGEST MANUFACTURER of one class of clay products in the world recently tested the

Hook Down Draft System

He built two new kilns, both connected to the same stack—one a 36′ Hook Down Draft Kiln, the other a 30′ kiln of his old type (as good as any common kiln). He regularly burns hard ware clear to the bottom of the 36′ Hook Down Draft Kiln in **18 hours less time** than the 30′ common kiln, with a **50% Reduction** of the amount of ware spoiled in kilns, and with considerably less fuel. The 36′ kiln has the better draft of the two. He (name upon request) pronounces the HOOK SYSTEM a thorough success.

We have many other such references.

Give us the number of kilns you have, kind of fuel, kind of ware, your present burning time and fuel consumption, and we will estimate the **SAVING** which the HOOK SYSTEM can make upon **YOUR** yard.

The Hook System is easily and cheaply installed in old kilns—less to build new than any other kiln of equal stability.

HOOK PATENT KILN CO.

High and Spring Streets

COLUMBUS, OHIO

NEW KILNS BUILT COMPLETE "READY FOR WARE"—BANDS, GRATE BARS AND ALL ACCESSORIES.

much more in 1917, and have started to plan for other improvements that will aid manufacturing conditions.

At a meeting to be held soon officers will be elected for the year and preliminary work started on several large and pressing problems. John Fritzinger of Perth Amboy, superintendent of the National Fireproofing Company's plant at Lorillards, is president of the association.

Clay Products in the Green Mountain State

While the number of brick yards in Vermont is not large, only fifteen or twenty, the output is steadily increasing because of the development in building. Vermont is a different community from the larger states in that it is not growing so fast, but its growth is substantial and it gets no set-backs. The result of this is that the demand for building brick is steady and yards can count upon a regular business from year to year.

The conditions which govern in this community are based upon this phase of substantial living. Good buildings are put up without reference to expense and a growing demand for brick and terra cotta is, therefore, in evidence. Only common-brick are as yet made in the state, but the manufacture of terra cotta ought to prove remunerative under present circumstances. Lumber is growing scarce and high in price. The cost of a fireproof building, even among the mountains, is not much greater than that of an inflammable timber structure.

Brick have sold up to eleven and twelve dollars a thousand this year, and now that the yards are closed, it is quite impossible to say what the price is. Not much buying is done in winter any way so the question of price does not excite much interest.

Little Ferry (N. J.) Yards Report Good Year

Little Ferry, N. J., occupies a position of some importance in the common-brick branch of the industry in that state. N. Mehrohf and Company employs forty persons when running at normal capacity. Of course, like many others, this concern has suffered during the past year from a shortage of labor and its output has been no more than normal, while orders were sufficient to carry it over that figure.

It is a very old firm, one of the oldest in that part of the state. The original Mehrhof was a pioneer in the business. In fact, the first yard was opened in this vicinity in 1835 and its operation has been continuous since.

The Mehrhof Brick Company in the same city employs one hundred and twenty-five people when its work is running as it should, but this season it has had the same difficulty as others and at one time nearly had to cease operations until it could find additional workmen. But it burned brick into early December, an unusual procedure in that locality.

Treviranus and Gardner, also of Little Ferry, employ forty persons normally. They have been running to full capacity most of the year, regardless of the labor shortage, and their last kiln was burned in December. They have few brick left for the early spring trade this year.

Shipping from Little Ferry is not altogether a pleasure. The brick have to be sent by schooner to New York, or loaded into barges and rowed up the river to Ridgefield Park where a spur track runs down to the

SAY I SAW IT IN BRICK AND CLAY RECORD

Hackensack river. Cars are placed on this spur and the scows run up on each side, allowing the brick to be unloaded into cars. It is at best but slow work, yet it is the only method available, since no spur track could be built from the railroad on the Little Ferry side of the stream excepting at the expenditure of much money. It would be a great stimulant to the brick business in this vicinity if the shipping facilities could be improved. The normal output there is in the vicinity of 20,000,000 brick.

* * *

Quality Marks Exhibit of Jersey Clay Wares

Under the guidance of Miss Helen M. Perry, working under the direction of the Bureau of Conservation and Development, comprehensive exhibits of all the industrial products of the State of New Jersey, including the natural resources, have been installed in the state house at Trenton. Among these exhibits manufactures of clay products have a prominent place.

The exhibit of pottery is headed by samples of the finest Balleck ware made by the potteries of Lenox, Inc., of Trenton. Critics praise this ware and declare that it compares favorably with any similar ware made.

The Fulper Pottery Company, Flemington, which received the highest award at the Panama-Pacific Exposition, has installed a representative exhibit of its products. A number of beautiful vases, a lamp and several other decorative articles were sent over from the factories to add to the attractiveness of the exhibition room.

The Mueller Mosaic Company, Trenton, has an exhibit of tiling with mosaic and tile pictures which are objects of great beauty. Some of the tile pictures sent out by this concern rank with the very best made. The company's colored tile, too, is unusually attractive and is worked out with uncommon artistic feeling and appreciation of the possibilities and limitations of clay.

The Atlantic Terra Cotta Company of Perth Amboy has a comprehensive exhibit of its products, including many of its special designs in architectural terra cotta.

A case of exhibits shows in detail how clay products are produced, and along with it are important exhibits of sanitary ware and brick of various grades and for various purposes.

Relatively few manufacturers of clay products are represented, but even tho this is true, the exhibit is reasonably comprehensive and affords a fairly accurate impression of the importance of the business, with the added force of showing the quality of the work turned out.

* * *

Pennsylvania Insurance Board Gives Refund

Brick and other clay products manufacturers who insured their employes with the Pennsylvania State Workmen's Insurance Board received the delightful news recently that dividends aggregating approximately $90,000 will be distributed among the policy holders of the state workmen's insurance fund.

This refund consists of a fifteen per cent. dividend to all commercial and general industrial risks insured by the fund, including brick manufacturing plants, while coal mine operators will receive a refund of ten per cent. The declaration of this dividend is based on the experience of the state fund for the eleven months that ended November 30th. These dividends will be distributed among state fund policy holders in the shape of credits on the cost of renewing premiums for the year 1917, which is equivalent to the payment of a cash dividend during the first months of the new year.

Dividends will not be paid on policies written at the mini-

GANDY and Gases



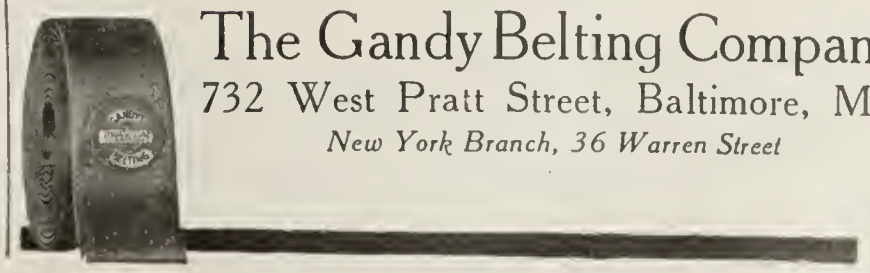
"We are pleased to advise you that the Gandy Belting we have been using for some time in our forging shop has given us excellent satisfaction. We use it in places where it is exposed to the heat and gases in preference to anything else we have ever tried. We would recommend it to anyone being obliged to expose a belt to such conditions."

The gases common to some manufacturing operations and so unavoidable in many plants, are exceedingly harmful to most belting.

This latter shows what action a manufacturer should take when he learns that such conditions are shortening the life and service of his belts.

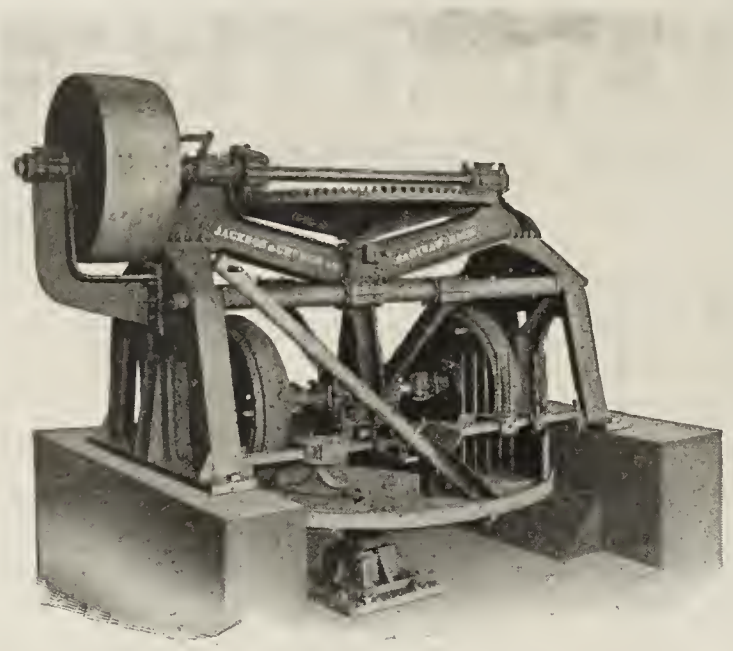
Aside from being advantageous in duties such as this, GANDY Belts are equally superior in conditions where oil, steam, water, heat and dust are encountered.

Gandy Belts in all kinds of belt service, live up to the reputation for dependable service that they have gained in 39 years. They are ready to prove themselves dependable in your work—and save you money at the same time. Prices, samples and full information sent upon request.



The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street





Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

mum premium rate of five dollars per year, as this premium is the lowest amount for which a policy in the Pennsylvania fund may be written and is not subject to further deductions.

During the eleven months of 1916 the state fund paid to injured employes, whose employers were insured in the state fund, a total of $116,309.74. During the same period the fund set aside as a financial reserve to carry these compensation claims of injured employes or dependents to maturity amounted to $309,597.27, not counting a special catastrophe fund of $57,917.14. This leaves a dividend to be distributed amounting to $122,494.71.

* * *

Steel Holds Back Large Structural Work

In speaking of the unusually large amount of dwelling and factory construction that has taken place during 1916, and the comparatively small amount of really large structural work that was completed during this period, President W. D. Henry of the National Fire Proofing Company, Pittsburgh, Pa., stated recently that "during the past three or four years, the building business which relates to large structures has been unsatisfactory and during the past six months has shown little improvement, owing to the high cost of steel. Many contemplated improvements have been held up as a result. Should steel prices drop, there would be a large amount of work done, and particularly in skyscraper construction.

"The dwelling and factory building business was especially good during the last half of the year, and particularly in the erection of homes for the working classes, some of the large corporations of the country making important improvements for the benefit of their workmen. Taken in its entirety, the large increase shown in residence and building construction has about offset the decrease in the erection of larger buildings. The outlook for this class of work for 1917 is most promising."

The National Fire Proofing Company during the year received a contract for the erection of scores of hollow-tile houses for the use of workmen employed at the plant of the Maryland Steel Company, Sparrows Point, Md. This company also built a large number of hollow-tile houses of red, brown and buff colors in Pittsburgh. In both cases the houses have been sanitary and up-to-date in every particular.

* * *

Fritz Salmen Builds South's First Ship

Altho the text of this item bears no intimate relation to the burned clay products industry, but would, in fact, make interesting reading in the pages of a lumber journal, yet its account of the activities of one of the premier brick manufacturers of the South in another line of endeavor makes it an item of great interest to the large number of our readers who are acquainted with Fritz Salmen, first vice-president of the National Brick Manufacturers' Association and president of the Salmon Brick and Lumber Company located at Slidell, La.

As a result of the industry and business acumen of Mr. Salmen, his brother, Albert Salmen, and his son, Fred W. Salmen, and co-workers, a tradition that has almost come to be accepted as a fact, was broken, and no longer is the industry of building big ships confined to the sea coast. In the accompanying photograph is seen the first big boat made by the Slidell Shipbuilding Company, on her dignified way into the waters of Bayou Bon Fouca. The Baltic 1 is her name, and she claims the distinction of being the largest ship ever built in the United States south of Newport News, Va. She



is 230 feet in length and has a forty-four feet beam, and is constructed almost entirely of wood. The launching of this great boat was witnessed by two hundred prominent business men of New Orleans, carried to the spot on a chartered train.

Three more ships, the Baltic 2, 3 and 4, are now under construction at the company's yards, and they will be launched in a comparatively short time. This fleet of four big steam-



ships is being built for the Damskibs-Aktieselskabet Baltic, a Norwegian company, for freight carrying purposes.

* * *

Fire-brick Company Leases Big Clay Deposit

The Chicago Retort and Fire Brick Company of Chicago and Ottawa will soon begin mining fire-clay from an immense tract of land in Goose Lake township, Grundy county, Ill., which it recently leased from William Anderson. The clay will be shipped to the company's plant at Ottawa to be used in the manufacture of fire-brick and other refractory products.

As reported in a recent issue of "Brick and Clay Record," the refractories company filed a contract for the purchase of this tract of 480 acres several weeks ago, making two options to the owner. One of these provided for the purchase of the property for the sum of $250,000, while the other was made upon a royalty basis on the number of tons removed from the property. The latter is the option the company closed with Mr. Anderson, from which he will recive a royalty of more than $1,000 a month for the clay mined from the tract. On eighty acres of property, the royalty price is fifteen cents a ton, while on four hundred acres, containing a higher grade of material, the price is to be twenty-five cents a ton.

Parties who have an interest in another tract of land near that purchased from Mr. Anderson, which contains extensive fire-clay deposits, are negotiating with the Illinois Steel Company for the sale of their property. An offer of $3,000 an acre on the basis of royalty payments has been refused, but it is quite likely that a satisfactory settlement will soon be consummated, according to one of the men interested. In this event, it is reported, the steel company will erect a plant on the tract at an early date.

* * *

New Hampshire Brick Rates Adjusted

A very interesting decision has just been handed down on brick as a result of an investigation by the Interstate



Why Motor Drive is Best

No. 3

When equipping a new plant you always look for the most improved design of machinery to insure the best plant condition and greatest economy of operation.

Westinghouse Individual Motor Drive

gives a flexibility of layout, to secure cleanliness, best lighting conditions,—ease and convenience of operations of the various machines.

Favorable conditions mean favorable results from the operators as well as the machines.

A card to our nearest office will bring full information.

Westinghouse Electric & Mfg.Co.
East Pittsburgh, Pa.

Sales Offices in all Large American Cities 435





There's a Big Difference in Fans—

Just because a fan revolves it does not necessarily follow that it is doing efficient work. Many fans look much alike, yet they do not all classify as easy-running, capable of handling a large volume of air at low operating cost, or economical in upkeep.

CLARAGE
KALAMAZOO
"Multiblade"
FANS

have proven their superiority for clay plant work, and you should find out about them before purchasing any other.

The bearings are the only part of a Centrifugal Fan subject to wear, and Clarage Fans are now equipped with Clarage Special Bearings, which are enclosed and dustproof. This reduces the friction (or wear) to a minimum.

Yet this is only one of many strong features that our engineers have devised to produce the fan of perfect satisfaction.

Write us—we will gladly co-operate with you so as to help you secure the best possible results in fan operation.

CLARAGE FAN COMPANY.
KALAMAZOO—MICHIGAN—U. S. A.

Commerce Commission of the brick rates from New Hampshire stations. In their syllabus in this case the commission says in part;

"1. Joint rates on brick from Gonic, N. H., to certain stations on the Boston and Albany, and New York, New Haven and Hartford railroads found unreasonable. Reasonable maximum rates prescribed for the future. Reparation denied.

"2. Rates from Gonic to stations in trunk line territory not shown to be unreasonable or unduly prejudicial, except the rate to New York, which exceeds the aggregate of the intermediate rates. The rate to Brooklyn should not exceed that to New York by more than forty cents per net ton.

"3. Schedules under suspension ordered cancelled."

The commissioners have also suspended until May 1st the operation of certain schedules appearing in Pennsylvania Railroad I. C. C. tariffs. The suspended schedules name an increased rate on hollow building blocks, carloads, from Brooksville, Pa., to Ithaca, N. Y. The present rate is $1.58 and the proposed rate is $1.84 per net ton.

Ballou of Buffville Heads New Company

The Kansas City (Mo.) Brick Company, Inc., has started the construction of its plant at Vale, Mo., which is about sixteen miles from Kansas City. The company was recently incorporated with a capital stock of $50,000, under the laws of the state of Kansas. The officers and incorporators are: B. W. Ballou of the Kansas Buff Brick Company, Buffville, Kan., president; L. L. Ponsler of the Iola Brick Company, Iola, Kan., vice-president; J. H. Campbell of Iola, Kan., secretary, and L. E. Horville, treasurer. The plant at Vale, Mo., will cost approximately $50,000, and will have a capacity of 50,000 brick per day. "The plant will be fully equipped and up-to-date in every particular and we will most likely maintain sales offices at Kansas City," said Mr. Ballou, recently. "However, the location of a sales office has not as yet been determined."

Builders' Supply Association to Meet

With the purpose of strengthening and perfecting its organization, and to establish closer co-operation among its members, the National Builders' Supply Association will hold its eighteenth annual convention at the Hotel Sherman, Chicago, Ill., on February 12th and 13th.

One subject of much interest to manufacturers of face-brick that is to receive consideration at the coming meeting is that of the advisability of retail dealers handling face-brick, and the best manner to establish an understanding with the manufacturers of that product which will assure the dealer of a profit on the material he sells. Other subjects on the program will hold much of interest to manufacturers of burned clay products, and the builders' supply men are looking forward to seeing a large contingent of the clay fraternity present at the meeting.

Extensive improvements were made at the plant of the Ironclay Brick Company, Shawnee, Ohio, shortly after the first of the year when it was closed during the negotiations with its employes of a new wage scale. A large amount of repairs and changes were made in the kilns, the molding and other departments.



MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Shaking Grates for Kiln Furnaces

It is remarkable the way in which the shaking grate has been accepted during the last year as a substitute for the old, insufficient slant-grate and solid-bottom furnaces. Quite a few of the progressive plants burning fire brick, face brick, paving brick, sewer pipe, drain-tile, pottery, fret, etc., have installed these grates first on a trial basis and then as a permanent proposition.

Everywhere the general trend of thought is toward a closed furnace—that is the so-called box furnace equipped with horizontal shaking grates.

This is natural, for, under ordinary circumstances, it is difficult to control the bed of coals; clinkers form in enormous wads, and the side walls of the ash boxes are pried loose by the strenuous use of the necessary clinker bar.

When the clinkering operation is proceeding, there are few firemen skilled enough to prevent great fluctuations in the heat of the furnace proper, and the consequent alternate chilling and heating up of the ware that comes during cleaning and after cleaning. Nearly six years of continuous service with Canton Kiln Grates has demonstrated on a fire brick plant the following items:

A saving of from 25 to 40 per cent. in fuel.

A wonderful saving in the cost of brickwork in the firebox.

Reduction in labor of firing and cleaning.

Heat to which firemen are usually subjected eliminated, therefore attracting a better grade of workmen.

Absolute control of oxidation, reduction and heat flow.

The burning of cheap coal, reducing fuel bill and rendering the plant independent of coal, seizure by carriers, in times of labor trouble.

Stability; a record of over five years in burning high-grade fire brick without replacing a single grate bar.

The grates are made either with or without wheels for any size pocket, and to burn any kind of coal. No doubt, the shaking grate is the best method known for burning solid fuel in periodical or continuous kilns. Full information can be obtained from the Canton Grate Company, Canton, Ohio.

The "Booster"

If you are not on the mailing list of this little magazine, you should send in your name at once, asking that it be sent to you free of charge.

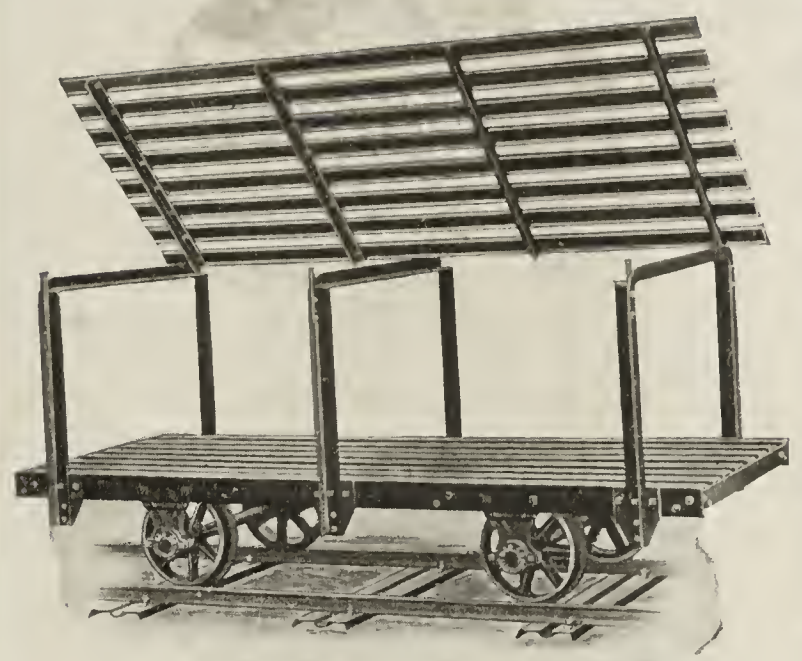
The "Booster" is the publication issued by the Sawyer Belting Company, of Cleveland, Ohio, in which they indicate the stock of belts on hand, and also publish articles of general interest relating to belting.

It is rarely that the "Booster" does not contain one or more stories on the lighter side of life, and altogether it makes a valuable monthly caller for any clay plant.

Guaranteed Kiln Iron Work

Every brick-plant manager knows that no matter how good the mason work is in the construction of kilns, that such efficiency may be totally destroyed unless the bands, lugs and other iron work is the very best obtainable.

It is with this thought in mind, and because of their broad experience in the construction of kilns, that the Hook Patent Kiln Company, High and Spring Sts., Columbus, Ohio, have developed all kinds of kiln iron work of the very highest quality. They are in position to furnish bands, lugs, grate bars, castings, etc.



IN ORDER TO SERVE YOU EVEN BETTER THAN IN THE PAST

We have reorganized our sales department by appointing Mr. Lloyd Brown to manage the sale of cars, track and industrial equipment. His assistant will be Mr. W. A. Meddick.

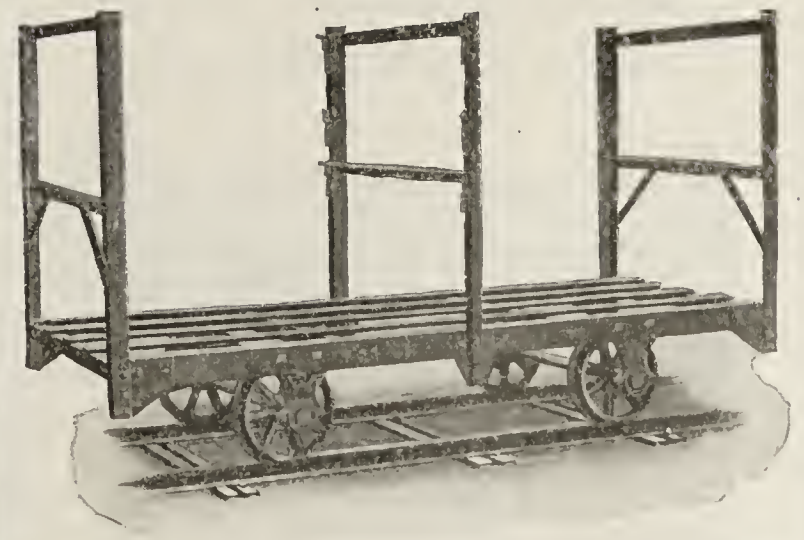
Both of them have been connected with us for many years and are so well known as to need no introduction to the Clay Products Industry.

This only strengthens the Lakewood organization, which is yours to command, and we shall continue to produce the same high quality of equipment that has helped to establish the

"Leadership of Lakewood."

Lakewood Engineering Co.

CLEVELAND, OHIO



SAY "I SAW IT IN" BRICK AND CLAY RECORD

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

This company uses nothing but the very best of materials in the construction of their kiln irons and guarantee their workmanship to be the very best obtainable. They are making replacable end grate bars for inclined grates and guarantee these to be made of the very best gray iron, and that no scrap is used.

Their reputation in connection with the building of Hook Down-Draft Kilns is helping them also to build up an enviable reputation in connection with their kiln iron work.

* * *

Making Better Men

"The making of men is an important function of the modern industrial institution," asserted M. L. Pulcher, vice-president and general manager of the Federal Motor Truck Company, while discussing a training course conducted by the corporation thru which young men are taught the motor truck business and enabled to eventually become important factors in the automobile world.

"No business institution can become greater than the men who make up its working organization," continued Mr. Pulcher. "For that reason modern successful factory executives want to see the men in their organization advance—and become bigger and broader men. They want to capitalize on the men in their organization—and make them important cogs in a smooth running machine.

"At the Federal plant we put through our mechanical department each year from 25 to 100 men who have been selected for this special training course because we believe that they are perhaps above the average in intelligence and will develop into useful members of our organization.

"The various department heads are instructed to give these men every assistance possible, that they may become truck experts.

"This training course has been a success. There are graduates of the Federal training course who are now among our largest distributors. Others are dealers in various cities. Of course, it is not to be expected that these men will always remain with the Federal company, and some of these graduates have become identified with other large manufacturing companies.

"This training course gives the men the same instruction in a year which it takes an apprentice in our mechanical department four years to acquire. Thus these men become truck experts in a year and are then ready to enter many of the various departments in our organization where such experts are required.

"It will be seen that the Federal Company is not only a truck manufacturing plant, but is really a man factory. And we believe that the making of more efficient, broader and bigger men for our organization, is a most important work."

* * *

"High Cost of Leaks"

Referring specifically to steam and water leaks, the above is the title of a folder gotten out by the Homestead Valve Manufacturing Company, Homestead, Pa.

It proves in a positive, convincing manner the losses that accrue from seemingly insignificant leaks.

For instance, it shows "that a leak about the size of a pin head, thru a blow-off valve, should show a loss of approximately $50.00 in water and heat units wasted."

An amazing instance, yet other leaks just as startling are noted emanating from the other valves used in steam power plant installations. The folder is for free distribution.

* * *

Cork Insert Pulley Drives Cutter

Wherever the drive is difficult, or where any loss of power occurs due to belt slipping, the Cork Insert pulley has proved to be the cure.

As usual with all modern ideas and innovations the idea of cork inserts in pulleys was not readily accepted by the skeptics, and the cork insert simply had to prove itself.

This proof is now accessible in all industries and particularly in the clay field, where dust, oil and moisture are common enemies of efficient power transmission.

The following letter is of intense interest to clayworkers:

SAY "I SAW IT IN" BRICK AND CLAY RECORD

"I want to apologize for not answering your request of June 28th, 1916, in regard to information on Cork Insert pulley. Am pleased to say that I installed a 4-inch diameter, 5-inch face stel cork insert pulley on my 5-Hp. motor, going 1,700 revolutions per minute, in 1913. This motor pulls my cutting table which in starting is subject to sudden jerks, which if anything would cause considerable belt slip at this speed, but have no trouble of this kind. Pulley has and is giving good satisfaction. Wishing you success.

I remain, yours very truly (signed), I. Menefee, Monessen Brick Works, Monessen, Pa.

New Equipment

The International Clay Machinery Company of Dayton, Ohio, are getting a good start with clayworkers thruout the country.

The largest of their recent sales includes a six tunnel Producer Gas Fired Metallic Radiation Dryer to The General Insulating & Mfg. Company of St. Louis, Mo., and Alexandria, Ind.

A Pentagon Power Roofing Tile Press (photograph of this machine below) to Jose Villaverde of Cruces, Cuba.

A complete small outfit to the Krajewski-Pesant Corporation of Havana, Cuba.

Four International 8 ft. wet pans to the Scullin Steel Company of St. Louis, Mo.

A complete installation of an International Producer Gas Fired Continuous Tunnel Kiln to the Cuban-American Sugar Company of Chaparra, Cuba.

A six tunnel Metallic Radiation Dryer to the Tar River Brick Company of Rocky Mount, N. C.

A big order for special large dryer cars to the Clay Products Company of Brazil, Ind.

Complete equipment for doubling the capacity of the Sun Brick Company's plant at Toronto, Ont., Canada, including 20 Tunnels of Producer Gas Fired Dryer, 240 triple deck dryer cars, four International Gas Producers, and auxiliary equipment.

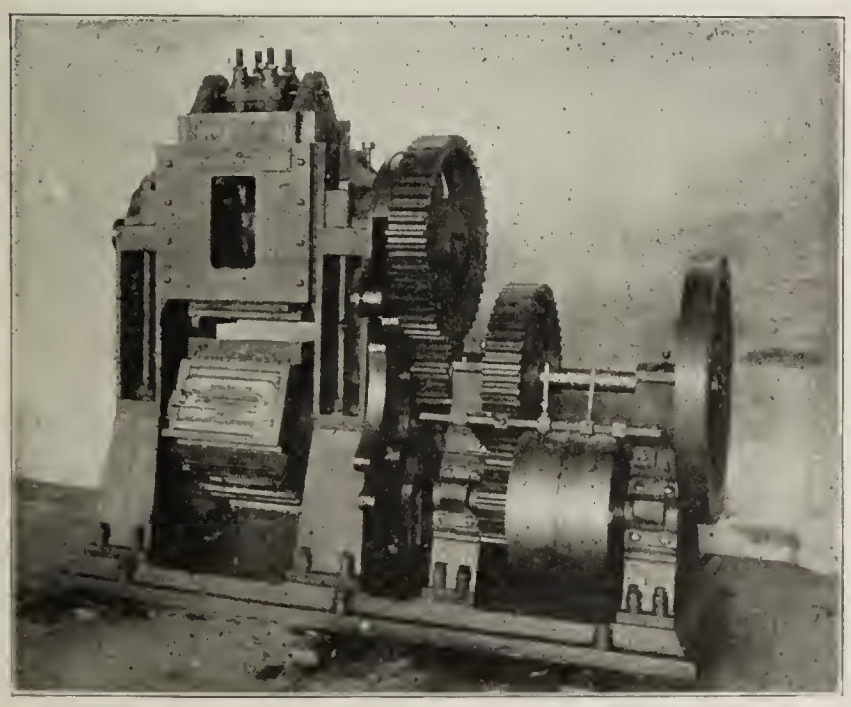
To top this off, they have just closed a contract for eight low frame heavy duty pans and sixteen piano wire screens with a large Montreal firm.

Interest is keen with reference to the Producer Gas Fired Dryer and Producer Gas Fired Continuous Kiln.

Truck Tires

One of the first of the rubber companies to apply itself to the problem of producing tires for the modern motor truck—the most efficient carrier since the locomotive, was The Goodyear Tire & Rubber Co., Akron, Ohio. In the evolution of the solid truck tires, this company, with its exhaustive experimental research facilities, has played a most prominent part.

In many respects the introduction of the motor truck



Pentagon Power Roofing Tile Press Manufactured by the International Clay Machinery Company

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE

R. D. WOOD

AND COMPANY

Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.



Take a Good Look At The Photo Below

You can readily see that it's just as easy to operate our

ELECTRIC ELEVATING PLATFORM TRUCK

in and out of a kiln door as it is to run a barrow in or out. In fact, it's easier, because the truck is steady and there's no danger of a "spill."

But this is only one of many advantages our truck offers you. It carries six times as many brick as a barrow and travels much faster—it cuts out a lot of men. And there's no lost motion or time because the platform on which the brick rest is portable—while the truck is running there's a platform at one end being loaded and one at the other end being unloaded.

This is an economy that you ought to investigate. Let our engineers consult you about it and tell you what we can do for you.

The Automatic Transportation Co.

Buffalo, N. Y.



has not been unlike that of the steam locomotive some ninety years ago. When the locomotive was ushered in to a wondering and incredulous world, its sponsors entertained fanciful visions of its future importance as a carrier, but their "iron horse" was still little more than a giant toy. Road conditions—where there were roads—absolutely prohibited its use.

So the idea of a specially constructed track and a wheel with a side flange or "tire" as railroad men know it, confining it to the track, was conceived. The first rails were of hardwood strips, which, however, proved impracticable on account of their short life. Then the expedient of placing a strip of iron on these wooden rails was tried, with scarcely any better success. The iron wore uneven and became very rough. In many instances it became detached from the wooden rail and rammed through the bottom of the car, causing much damage to the rolling stock and great injury to the passengers.

Next an all-iron rail was used with appreciably better results, followed by the light T rail, and finally by the heavy rail of today.

The adaptation of the motor truck to present day traffic uses has been accomplished by conquering just as trying conditions as those confronting the locomotive nearly a hundred years ago. Gas makes the giant go, but without a suitable track of tires—made of rubber, the sap or "blood" of a tree, its commercial advantage would be limited.

The S-V Pressed On Truck Tire occupies the pinnacle of Goodyear's achievement in this line. It is so constructed that the truck is allowed full use of its power. A fair example of the performance of Goodyear S-V's is contained in a letter just received from a milling company of Dallas.

Their letters reads:

"On December 14, 1914, you equipped our 4-ton truck with four 36x6 S-V tires of dual rear wheels. To-day they have run 10,233 miles and look good for another 10,000. Our track weighs 9,600 pounds and we load 5 tons."

This record is indicative of the factor of safety and economy built into these tires. Bearing a weight of 20,000 pounds—a tremendous overload—for more than two years with the tires only half worn out, is a record which speaks volumes for the Goodyear product.

* * *

Organization Changes

The sales of dry cars and dump cars have increased to such a volume with the Lakewood Engineering Company of Cleveland, Ohio, that it has been found necessary and advisable to increase the size of their plant and to make readjustments in their sales organization.

Lloyd Brown, who has been connected with the Lakewood Engineering Company for a great many years, is manager of the Car, Track and Industrial Equipment Department. With him will be associated W. A. Meddick, who is already so well-known among the clayworkers.

Electrical industrial equipment, the new addition to the Lakewood line, will be under the supervision of H. Walter Sykes, and W. A. Grail will handle clamshell buckets and similar equipment.

With this organization better-than-ever-service will be added to the already good quality of Lakewood equipment.

* * *

Death of Mr. Jenkins

Jenkins Bros., of 81 White Street, New York City, announce, with deepest sorrow, the death of their president, Alfred Blunt Jenkins. Mr. Jenkins has been affiliated with Jenkins Brothers Company for many years and has made a memorable record in the valve and steam fitting world. It is with sincere regret that we make this announcement of the passing of one of our nationally known business men.

BETTER to read a dozen ads you are interested in, than to miss one that would be of value to you.



The EDITOR'S CORNER

How Would War With Germany Affect the Clayworking Industry ?

WHILE it is impossible, of course, to predict exactly just what effect a war with Germany would have on business in general and upon the clay products industry in particular, there are many signs and conditions that are encouraging at this writing, and which we would do well to review.

It is to be taken for granted that, as patriotic and loyal citizens of the United States, our first interest is in the welfare of our country. However, between the outbursts of martial music and the appeals of the recruiting officers, we as business men can do our nation a service by carefully considering what the future will bring for America's industries, and having looked the facts in the face, make known the result of our decision so that damaging rumors, so numerous in times as these, can be disproved.

APPREHENSION FAST FADING

Several days have now elapsed since the president told Congress that he had instructed Mr. Gerard to ask for his passports and that Count Bernstorff had been handed his, and the sensitive nerves of business have quieted considerably. A noticeable change has come over the stock market, which is well described in the New York "Evening Post" of February 9th, as follows:

"Along with the virtual suspension of judgment as to the economic and financial results of the present situation, the stock exchange for long periods during the day also practically suspended business. Intervals of several minutes sometimes elapsed with not a transaction recorded by the ticker; especially in the afternoon dealings fell away to a minimum. Just what the market would do in the event of some sudden and dramatic turn in international affairs it is impossible to predict; but what seemed today to be very evident was that there had been very complete adjustment to the all pervading uncertainty. The present holders of stocks have not been induced to sell by the threat of war. Whether their tenacity is due to disbelief in the approach of a conflict, or to their faith in the financial situation, even if war should come, is immaterial as far as the market is concerned at the moment. There has been ample time for preparation for whatever might occur, and the stock exchange has apparently made excellent use of the opportunity."

From the above it can very readily be seen that even the most excitable department of business has quickly steadied itself, and while conditions on the stock exchange are not normal, there are reasons for believing that business in the usual way will rapidly be resumed.

GOVERNING FACTORS

The clay products manufacturing industry, with the exception of pottery and some of the finer and more delicate clay wares, depends upon activity in building construction, street and road improvements, municipal work and the metallurgical industries. If we are able to judge somewhat as to how a possible war with Germany will affect these activities, then we can arrive at a conclusion regarding the prospects for the future prosperity of the clayworker.

BUILDING PROSPECTS

With the first news of the new submarine campaign, building construction naturally paused, but it is very evident that this was only a pause, for plan filings have been resumed and are still being made. One New York authority even goes so far as to say that a war might stimulate activity in building circles for the reason that real estate and buildings are considered to be the safest kind of an investment in turbulent times. The amount of securities that has been and is being bought in this country is enormous, and if even a small part of these were liquidated, it would furnish sufficient ready money to transact a great many attractive deals in the real estate and building market.

Then again, the tremendous amount of work that was left over from 1916 and scheduled for sure completion this year will do much to provide a good market for brick and other clay products without taking into consideration any new operations. Clay plant after clay plant closed its 1916 books with a sufficient amount of unfilled orders on its books to keep it busy well into the present year.

PUBLIC WORK

In spite of the poor condition of municipal finances, the paving-brick and sewer-brick branch of the industry enjoyed a good business during 1916. Many new street and road projects, which will require a large amount of paving-brick will soon come up for bids, the money for which, in a good many cases, has already been provided by bond issues. Just what effect a war would have on the projection of this work is hard to say at the present time, for there has been little experience in the United States in like situations to form any basis for drawing conclusions. The construction of hard roads on a large scale is a movement that belongs distinctly to the twentieth century and no previous pre-bellum situation would apply, as it is more than fifty years since we have had a war in this country. A nation needs its roads more in war than in times of peace and it would be a very foolish move to suspend operations on any road project in the event of war.

REFRACTORIES MARKET

The future prospects of the metallurgical industries should be productive of little speculation for any one. War would only add to their present activity and the consequent demand for refractories. The fire-brick branch of the industry is now from three to five months and possibly more, behind on orders and a declaration of hostilities would lengthen this period considerably.

It would, therefore, seem that there is very little ground for apprehension so far as the immediate and future prosperity of the clay products manufacturing industry is concerned. Military experts are inclined to believe that even should war with Germany materialize, the conflict would take on an economic aspect, and call for little actual participation in hostilities.

REPORT U-BOATS FALLING DOWN

Furthermore, recent advices are to the effect that the U-boats are falling far short of accomplishing their daily task of sinking a set tonnage and that shipping is not being as seriously interfered with as at first thought. One authority states that, owing to the greatly increased activity in ship-building all over the world, particularly in Great Britain, there are now more ships afloat than before the war, in spite of the damage done by submarines. If this is true, then the prospects of maintaining a large part of our trade with England and France are brighter than was at first thought.

KNOWLEDGE *of* SALES



JOHN H. BLACK
Secy. and Treas., Jewettville Brick Co., Buffalo, and Chairman of Committee to Judge Papers

"Brick and Clay Record" Will Give One Hundred Dollars in Cash Prizes to the Face-brick Salesmen Who Present the Four Best Discussions or Papers, Setting Forth Real Reasons Why Paragraph Four of the American Face Brick Association's Code of Ethics Should Be Observed—Registrations for the Competition Must Be in by March 15th and Contest Closes April 15th

TO THE FACE-BRICK SALESMEN of America: Are you interested in a gift of fifty dollars in cold cash, or twenty-five, fifteen or ten, these days when potatoes bring more than two dollars a bushel at the grocery?

Would you like to help along a discussion on good sales ethics? You are daily in touch with the trade and know what it is to be up against unscrupulous competition.

While some of us are extremely modest and avoid the limelight like a plague, still is there one of us who would not experience a thrill of pride and a feeling of satisfaction at being pointed out by the clay products manufacturers of this country as being a man who knows his business and who stands for high ideals in salesmanship?

This is not mere persiflage nor are these foolish questions. "Brick and Clay Record" is preparing to present four face-brick salesmen somewhere on this broad continent with a sum of money which will aggregate $100 for the best discussions of paragraph four of the American Face Brick Association's code of ethics, which reads as follows:

"That this Association condemns the practice of 'knocking' competitors' materials or casting asperations that may be detrimental to the general face-brick business, and recommends that its members insist that their employes and selling connections refrain therefrom."

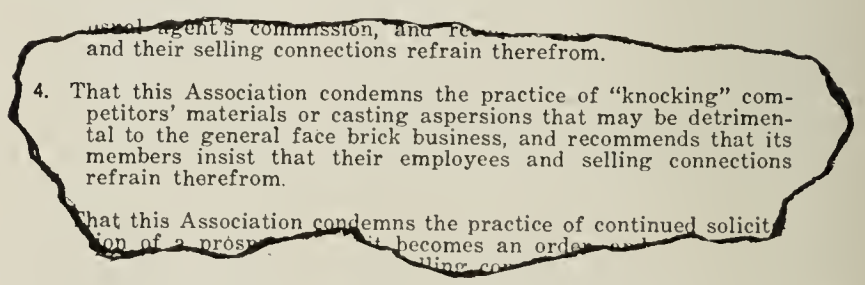
Furthermore, this magazine will print these papers in its columns, together with a photograph of the authors, if they can be persuaded to loan us their pictures.

HERE ARE THE FACTS IN DETAIL

The American Face Brick Association and the Face Brick Dealers' Association have accepted an offer made by "Brick and Clay Record" to provide prizes and conduct a competition among the salesmen of their members, taking as the subject for the papers to be submitted, any one of the nine paragraphs in the code of ethics of the American Face Brick Association, except, perhaps, No. 1. The paragraph chosen happens to be No. 4, as a result of the suggestion of a very prominent and capable salesmanager in the face-brick business. This paragraph has already been quoted.

All face-brick salesmen, not only those whose employers are members of the above-mentioned associations, but of any face-brick manufacturer or dealer in the United States or Canada, are therefore invited to study paragraph four of the A. F. B. A. code of ethics, write a paper on this subject and submit it to the editor of this magazine.

The president of the American Face Brick Association has



and their selling connections refrain therefrom.

4. That this Association condemns the practice of "knocking" competitors' materials or casting aspersions that may be detrimental to the general face brick business, and recommends that its members insist that their employees and selling connections refrain therefrom.

That this Association condemns the practice of continued solicit... becomes an order...

All Face-brick Salesmen Are Invited to Study the Above Paragraph, Write a Paper on This Subject and Submit It to the Editor of This Magazine

asked a committee of three, one of whom is president of the Face Brick Dealers' Association, to serve as judges in this competition, to decide upon the four papers that are entitled to the prizes, which are as follows:

First prize: Fifty dollars in cash.
Second prize: Twenty-five dollars.
Third prize: Fifteen dollars.
Fourth prize: Ten dollars.

ETHICS *to be* REWARDED



A. S. REID
of Newark, N. J., President of Face Brick Dealers' Association and Member of Judges' Committee



F. C. ASCHEMEYER
Another Member of the Judges' Committee and Salesmanager of the Hydraulic-Press Brick Co., St. Louis

ETHICS CHARACTERIZE PROGRESSIVE SALESMANSHIP

The day on which the American Face Brick Association adopted a code of ethics to be followed by its members and their salesmen, marked the closing of one epoch and the beginning of another among those who manufacture and market the aristocrat of brick. This event revealed a desire on the part of these clayworkers to put a stop to piratical and other damaging and unethical selling practices, and in their place, encourage methods which every honest man could endorse.

There is only one other clay products organization that has laid much emphasis upon ethics in selling and that is the now defunct Hollow Building Tile Manufacturers' Association of America, which formerly maintained headquarters in Cleveland, Ohio. During the early days of this young association, an excellent committee, headed by Frank W. Darling, then vice-president and salesmanager of the Clay Product Company of Chicago, formulated a code which was a credit to the organization. It is to be regretted that this phase of selling clay products has been rather neglected. Even the American Face Brick Association has allowed other matters to overshadow its code of ethics so that in a great many cases, no doubt, those who sell face building brick are not as familiar with it as might be desired.

It is with the sole thought and purpose of promoting a greater interest in sales ethics, particularly among those who are on the market's "firing line," namely, the salesmen themselves, that "Brick and Clay Record" has suggested this competition.

REGISTRATIONS MUST BE IN BY MARCH 15TH

As has already been mentioned, all face-brick salesmen are eligible to take part in this competition. It will, however, be necessary for those who are planning to submit a paper on the subject chosen, to so signify this intention in writing to the editor of "Brick and Clay Record," who will keep a record of the contestants. This must be attended to not later than March 15th, as no registrations will be received after that date. Registration should preferably be made on a blank which will be furnished to all salesmen for this purpose, and to all others whose names we do not have, but who will apply.

Four weeks will be allowed in which to prepare the paper to be submitted, at the end of which time the competition will be declared closed, and all papers received will be immediately forwarded to the committee of judges enumerated below and whose photographs appear in these columns, who will make the awards.

THE JUDGES

The chairman of this committee is John H. Black, secretary-treasurer, Jewettville Brick Company, Buffalo, N. Y. The two other members are A. S. Reid, president of A. S. Reid and Company, Newark, N. J., and Philadelphia, Pa., and F. C. Aschemeyer, salesmanager of the Hydraulic-Press Brick Company at St. Louis, Mo.

These men are eminently capable of determining just which papers are worthy of being awarded a prize. They will give every man who submits a paper a square deal, judging the fitness of the paper solely upon its own merits and the extent to which it adheres to the three important points outlined below. When the papers submitted in the competition leave the hands of the editor of this magazine, all names will

be removed from them and a number placed on each one to identify it. The judges will report to the editor the four successful numbers and then he will make the announcement of the winners' names in the May 8th issue of "Brick and Clay Record." Inasmuch as four weeks will be given in which to prepare papers for this competition, dating from March 15th, the contest will close on April 15th. This will give the judges ample opportunity to make their decision in time for publishing in the above-mentioned issue.

THE BASIS ON WHICH PAPERS WILL BE GRADED

The method followed in placing a value on the various papers submitted will include the splitting of one hundred per cent. in three parts, the first of these to be sixty per cent. and to be allowed as a maximum for the number of *real reasons* why paragraph four of the A. F. B. A. ethics should be observed. The remaining forty per cent. will be divided equitably between excellence of expression and neatness of presentation.

It will be well for those face-brick salesmen who are planning to submit a paper in this contest to study carefully the above-outlined method of grading.

First, remember that as high as sixty per cent. of the total grade may be allowed for the number of *real* reasons why the paragraph in question in the A. F. B. A. code of ethics should be observed; second, excellence of expression should be striven for, meaning that the usual grammatical and rhetorical rules of composition should be observed, and third, all who submit a paper should see that it is as neat as possible, typewritten, unless this is absolutely out of the question, *and written upon one side of the paper only.*

DO NOT FORGET OPENING AND CLOSING DATES

All who plan to submit a paper in this contest are requested to register this intention with the editor of "Brick and Clay Record," notifying him not later than March 15th on the blank furnished for this purpose. After this date, no one will be permitted to register and the contest will be brought to a close on April 15th, four weeks following the last day upon which registrations will be received. It is believed that in four weeks the average salesman can prepare a paper which will include his best thought on the subject.

All papers to be considered in awarding the prizes must be in the hands of the Editor not later than April 15th, upon which date they will be forwarded to the judges for their opinion. This will allow sufficient time for the judges to return their decision to the Editor so that the announcement of the winners can be made in the May 8th issue of "Brick and Clay Record."

A GOOD OPPORTUNITY

This is an opportunity for you as a face-brick salesman to win a valuable cash prize; to promote and assist in a discussion on the merits of ethics, the observance of which will put your business on a higher plane, and to gain desirable publicity, as photographs will be requested of the four winners with a view toward publishing these in connection with the announcement of the awards.

Show the "boss" that you know something about salesmanship and that you are alive to the things that will put and keep him and you on the road to success. He will be proud of you if you win one of those prizes and (while we do not want to raise hopes too high) it may help a bit in adding something to that "li'l ole pay envelope."

Attendance Doubled at Alfred Short Course

The second annual short course in ceramic engineering held at Alfred, N. Y., January 23rd to 25th, was a notable success. The attendance was exactly one hundred per cent. greater than last year. The interest and enthusiasm of those in attendance as well as the interesting and instructive series of lectures given combined to make the occasion not only interesting but decidedly profitable.

The course was designed to meet the needs of ceramic manufacturers in many lines, and the result was that nearly every line of ceramic manufacture was represented.

Following the course at Alfred, adjournment was taken to Corning, Friday, January 26th, where the entire day was spent visiting the Steuben Glass Works, the Corning Glass Works and the Brick, Terra Cotta and Tile Company. In the evening a dinner was given at the Corning Club and this was followed by the annual business meeting of the New York State Ceramic Products Manufacturers' Association.

CONTINUANCE OF COURSE ASSURED

The results of this course not only assure the continuance of the plan but prove that the manufacturers of the state are a unit in the support of the Ceramic school at Alfred, and are anxious to avail themselves of the benefit that is to be derived from this institution.

The lecturers on the program were as follows:

A. V. Bleininger, Ceramic Chemist, U. S. Bureaus of Standards, Pittsburgh, Pa.

C. F. Binns, Director and Professor of Ceramic Technology, New York State School of Ceramics.

J. B. Shaw, Assistant Director and Professor of Ceramic Engineering, New York State School of Ceramics.

W. A. Titsworth, Professor of Physics, Alfred University.

C. H. Milligan, Professor of Chemistry, Alfred University.

F. T. Owens, Fiske and Company, Ridgeway, Pa.

Grover Babcock, Ames, Iowa, and Alfred, N. Y.

Those in attendance, not connected with the school were as follows:

M. A. Haley, Syracuse, N. Y., Onondaga Pottery.

F. T. Owens, Ridgeway, Pa., Fiske and Company.

H. S. Langworthy, Orchard Park, N. Y., Jewettville Brick Company.

H. Schmitz, New York City.

A. L. Jensen, Brooklyn, N. Y., Empire China Company.

E. T. Lewis, Victor, N. Y., Locke Insulator Company.

R. F. Cleveland, Victor, N. Y., Locke Insulator Company.

E. J. Bayle, Rochester, N. Y., Pfaudler Company.

V. P. Charmann, Rochester, N. Y., Pfaudler Company.

J. Hughes, Rochester, N. Y., Pfaudler Company.

A. V. Bleininger, Pittsburgh, Pa., Bureau of Standards.

M. C. Gregory, Corning, N. Y., Brick, Terra Cotta and Tile Company.

F. M. Agge, Buffalo, N. Y., Sheet Metal Company.

Chicago Face-brick Company Reorganizes

After re-organizing and increasing its capital stock to $100,000, the Meacham and Wright Brick Company, located in the Chamber of Commerce building, Chicago, Ill., has elected as its president for the coming year, Fred M. Blount, a banker of long experience, and as its secretary, R. B. Howard, and accepted the resignation tendered by James J. Lyons, as vice-president and general manager of the company. Mr. Howard, who has acted as salesmanager for the last two years, will continue in that capacity.

NATION'S BRICKMAKERS MEET *at close of* NEW YORK'S GAYEST SEASON



Hotel McAlpin, New York, Where National Brick Manufacturers' Association Will Meet in Annual Session, March 5th to 10th

Spendthrift Invasion of America's First City Has Made Hotel Accommodations Scarce, but McAlpin Management Assures All Will Be Cared For

FATE HAS SPOKEN, and if the clay products manufacturer heeds the call, packs his traveling bag or suitcase, as the case may be, buys a railroad ticket to New York, there to attend the thirty-first annual meeting of the National Brick Manufacturers' Association, he will be able to see something of what that destiny has prepared for him.

NEW YORK A MECCA THIS WINTER FOR SPENDERS

Flushed with newly acquired riches, all of America it seems has turned its face toward the largest city in the world, some to witness its sights for the first time, others to seek an opportunity to spend in a lavish and care-free manner, the money that has come a little easier than during the past few years and in larger quantities with the general wave of prosperity that has engulfed the nation.

To describe the unparalleled influx of visitors to that metropolis and to attempt to convey some idea of their activities during the past few months is beyond words, for only those who are familiar with New York can appreciate the scene that a spendthrift crowd can set there.

New York, always a center of attraction for the elite of America, particularly during the winter months, has become the mecca during the season just closing for more people than a previously like period has ever seen. The invasion of this flush, riotus and spendthrift crowd began early in November and continued until about Thanksgiving time, when hotels became jammed and cabarets did a record business.

Immediately following this holiday and up until Christmas, crowds began to come with increasing numbers, seemingly with more money to spend than the earlier arrivals. This situation has constantly acquired a more affluent aspect until the present time, with signs that it will continue until the first of March, at least.

HOTEL KEEPERS IN CLOVER

The extent to which hotels in New York have gone to accommodate this throng of pleasure-seeking visitors and provide new amusements to while away the time is almost unbelievable. There are in New York now about twenty-two hotels which may be rated as first-class, having normal facilities for as few as four hundred guests, while others can take care of as many as fifteen hundred. There are, perhaps, one hundred other hotels of various grades of excellence whose total capacity probably exceeds that of the more luxurious type. There have been times this winter when a king's ransom could not have obtained a room in any one of these hostelries. The fact of the matter is that hotel clerks at periods have been kept exceedingly busy in securing accommodations for old-time customers in the neighboring cities and boroughs of Newark, Yonkers and Brooklyn, some going as far as

thirty miles from New York in order to secure accommodations. It has not been an unusual occurrence, say some who have been in the metropolis this winter, for a man in a white shirt front and his wife in a low cut evening gown, wearing expensive jewelry to leave a gay supper party, costing eight, ten or twelve dollars a plate, to make their way to a small and dingy hotel in a dark street of Hoboken or Long Island City.

SLEEP IN BATH TUBS

One writer, in reviewing this situation recently in a well-known weekly, recites the following amusing incident:

"One morning a man who was a guest at one of the most sumptuous of the hotels, walked up to the cashier's desk and presented a check to be cashed.

"'Your room number?' the cashier requested.

"'Bathroom J,' the guest told him.

"In that particular hotel and in nearly all the others, the public bathrooms on every floor were converted into bedrooms by placing mattresses in the tubs and in tubs merchants, bankers, and leading citizens from all parts of the country, sometimes their wives, slept, as it was a choice of that or sitting up all night in the lobby."

MAKE YOUR RESERVATION WITHOUT DELAY

So you see that while Fate has prepared an interesting visit for the clayworker in New York during the coming N. B. M. A. convention, which is to be held from March 5th to 10th, she also has brought about a situation that makes it advisable for every manufacturer contemplating attending the convention, to reserve his room without delay. In this connection a prominent brickmaker, writing under recent date, states:

"I just returned from New York, Saturday, and it occurs to me that you should play up quite strongly the lack of hotel accommodations existing in that city at the present time and advise all my friends who contemplate being at the convention or building show, to reserve their rooms immediately. My own experience was that I could not secure a single or double room in any of some over fifteen hotels to which I applied. Fortunately, I was able to double up with a friend whom I chanced to meet."

McALPIN SAYS ALL WILL BE CARED FOR

Contradictory to these reports, the management of the McAlpin Hotel has assured "Brick and Clay Record" that it will take care of any and all delegates and visitors to the coming gathering of clay products manufacturers. A situation that will assist them in making good on this promise will no doubt be a growing exodus of the spenders and newly-made rich, as well as a large number who are regularly classed as being wealthy, to warmer climates to spend the closing days of winter and the opening months of spring. The south Atlantic seaboard, including Florida, the Mardi gras at New Orleans and balmy California, offer many inducements to those upon whose hands time hangs heavy and whose wealth enables them to frequent such resorts. On the other hand, however, the convention opens upon inauguration day at Washington and this, no doubt, will draw many people to New York.

When the convention opens on Monday, March 5th, there is a possibility that hotel accommodations will give little trouble. However, as has been already advised, the safe course for any prospective delegate to pursue is to make reservation at once.

REDUCED RAILROAD FARES GRANTED

Reduced railroad rates will be granted to those who are planning to attend the convention, this action having been taken by the Trunk Line Association, the Central Passenger Association and the New England Passenger Association, which bodies offer reduced railroad fares on a certificate plan on the basis of two cents a mile for the round trip. This reduction will be granted not only to delegates but to those who accompany them. It is anticipated that other traffic associations will concur and a special rate will prevail from all points. Tickets will be made good going March 3rd, 4th and 5th. The full one way fare must be paid going and certificate taken for same. This, when vised by the secretary of the N. B. M. A. and the representative of the trunk line association, will entitle the purchaser to a return trip ticket at the reduced rate. Certificates must be vised during the convention but the return trip can be made any time prior to March 14th.

The American Ceramic Society will meet at the Hotel Astor, its opening session being called for Monday, March 5th, while a meeting of the board of directors of the National Paving Brick Association is scheduled for March 5th and 6th at the McAlpin Hotel.

BADGERS REPORT *a* PROFITABLE MEETING

ON THURSDAY MORNING, February 1st, President A. W. Hilker of the Wisconsin Clay Manufacturers' Association called to order the seventeenth annual meeting of that organization—a gathering that was destined to stand out from many of its predecessors by virtue of the unusually good program which it embraced, the exceptional interest shown by the delegates in the papers that were read and in the discussions that took place, and the development of subjects that were of vital, pocketbook importance.

A matter of interest regarding this meeting of the Badger association was that the majority of the speakers was "home talent." This fact made their papers of unusual value to the other manufacturers present, since they are laboring with many of the same problems under very similar conditions as the speakers themselves. Not a little credit for the high calibre of the meeting is due Samuel Weidman, secretary of the association.

If any one thing can be said to have been disappointing about the meeting, it was the comparatively small attendance. Despite the prosperity of times, or maybe because of it, only about twenty-four men were on hand to affix their names to the register.

COMMITTEE REPORTS OPEN THE CONVENTION

The first morning of the convention, which was held on February 1st and 2nd at the Republican house, Milwaukee, Wis., was given over to the reports of the secretary and treasurer, made by Samuel Weidman and S. Gunther, respectively; to those of the chairmen of the publicity and legislation committees, and to the annual address of the president.

During the afternoon, three excellent papers were read on subjects sufficiently broad in scope to afford matter of interest to all those present. The first address, made by Professor E. R. Jones, Madison, Wis., on "What Standardization of Drain-tile Means to the Manufacturer," emphasized the necessity for standardizing this important burned clay product. As pointed out by Professor Jones,

only the larger drainage undertakings today give attention to standards that must be met by the tile used, but in the near future, the farmer who has but a few acres to drain, will purchase his tile on the basis of standardization. The danger encountered in laying the tile, of subjecting them to too great a weight on top, was also pointed out by Professor Jones, who showed that, inasmuch as the pressure was dependent upon the width of the ditch, the logical method to employ in obviating this trouble is to dig a narrower ditch.

Secretary Weidman then read a paper prepared by J. D. Pratt of Menomonie, Wis., who was unable to attend, on the "Relative Efficiency of Up-draft and Down-draft Kilns," which was so highly considered by members that a motion was made and carried to have it printed and distributed. Following the reading of Mr. Pratt's paper and taking the place of I. M. Justice of Dayton, Ohio, who was unable to attend, G. W. Nushaw of Dayton, read Mr. Justice's paper on "The Use of Producer Gas in Burning Clay Products in Periodic Kilns."

PUBLICITY DISCUSSION OCCUPIES EVENING

The advisability and necessity for promoting the use of burned clay materials by use of more and advanced publicity, was urged at the round-table discussion of the question "Has the Brick Publicity Campaign Helped the Manufacturer?" which was held during the evening. Following this discussion, which brought to light many interesting thoughts, the members either sought shelter in their rooms or ventured out into the "eighteen below" weather enjoyed (?) by Milwaukee during the convention days, to indulge in some light entertainment.

Cost accounting received the attention of the delegates thruout the greater part of the morning of the second day of the convention. Oscar Wilson, a brick manufacturer of Menomonie who has spent a number of years in the field of banking, and consequently appreciates the great need for knowing exactly the manufacturing cost before determining the selling price, opened the morning session with a paper on "Cost Accounting," which laid bare the simple accounting system he was using on his plant. The paper read by Mr. Wilson, who, by the way, has the distinction of being the first president of the Wisconsin Clay Manufacturers' Association elected to serve two terms, was followed by a discussion that cannot but help to bear fruit in the form of a more vigorous attempt to ascertain manufacturing costs.

Altho not on the program for a leading number, F. E. Poels of Green Bay, proprietor of the Duck River Brick and Tile Company, precipitated a lively discussion and handed out some food for thought when he explained the manner in which he was using coal and wood to burn his brick in an up-draft kiln, and the surprisingly small amount of fuel that is required on his plant to burn a thousand brick.

OFFICERS ELECTED FOR COMING YEAR

To equalize the enormous amount of data and information that they had packed away under their hats during the morning, the delegates then adjourned to the dining room to put away a little under their belts. In the afternoon, the reports of the auditing, resolutions, nominating and railway rates committee were read. The officers elected for the coming year are Oscar Zimbal of Sheboygan, president; Oscar Wilson of Menomonie, vice-president; Samuel Weidman of Madison, secretary, and F. E. Poels of Green Bay, treasurer—all charged with the duty of putting on equally as lively and interesting a convention next year as was held on February 1st and 2nd, 1917, and bringing to the convention chambers just double the number of delegates that responded to this year's call.

National Terra Cotta Society to Increase Advertising Appropriation

Representatives of nearly all of the terra cotta manufacturers in the United States attended the annual meeting of the National Terra Cotta Society held at New Orleans, La., on January 29th and 30th.

The meeting was called to order by Professor Davis, who is president of the United States Bureau of Standards. A report was read by Harry A. Lucas of the Northwestern Terra Cotta Company, who is secretary of the society, covering the activities of the organization during the past year. On the evening of the 29th a banquet was served at the Grunewald Hotel, at which Professor Davis was also a guest.

During the sessions of the convention, talks were given by Wm. H. Powell, president of the Atlantic Terra Cotta Company, New York, N. Y., on "A Better Product," also by Mr. Grant on "Co-operation."

On Tuesday morning, January 30th, the convention assembled and listened to a report of the advertising committee, which was very gratifying. It was decided to increase the appropriation for this purpose, which is the principal work of the society. It was also decided to issue a terra cotta magazine, setting forth the merits of this excellent material, its uses, and so forth, which is to be published each month. The execution of this matter was left in the hands of the advertising committee with power to act as they deem best. After a hard day's work, the society adjourned to meet at San Francisco next year. Wm. H. Powell of the Atlantic Terra Cotta Company was re-elected president for the ensuing year.

Since the organization of this society, the object of which is purely to promote the use of terra cotta, a book has been issued, showing the proper use and construction of this material, same having been distributed among the leading architects of the country. Photographs have also been sent out showing the use of terra cotta for store fronts, theatre buildings, garages, and so forth, all of which have proven very beneficial to the business.

COMING CONVENTIONS

March 5th to 10th—American Ceramic Society and National Brick Manufacturers' Association, at New York, N. Y. A. C. S. Headquarters Hotel Astor; N. B. M. A., McAlpin Hotel.

March 5th and 6th—National Paving Brick Manufacturers' Association Board of Directors Meeting, McAlpin Hotel, New York, N. Y.

March 5th to 11th—Second National Complete Building Exposition, Grand Central Palace, New York, N. Y.

DRYER DETAILS

A Discussion of Points Frequently Overlooked in the Construction of Drying Equipment, Which, if Given Attention, Might Eliminate Much of What Has Heretofore Been Considered a Necessary Evil

By A. F. Greaves-Walker

Author of "Testing Clay Properties," "The Design and Construction of Down Draft Kilns," and Many Other Timely Articles on Subjects of Vital Importance to the Clay Products Manufacturer

IT IS NOT THE INTENTION of the author to go into a lot of theoretical calculations pertaining to the evaporation of moisture, size of flues, vents and stacks because such calculations are absolutely useless to the average clayworker. It is rather the intention to stick almost entirely to constructional details and suggestions, and especially to those which are so often overlooked and which lead to those annoyances to which so many dryers are heir.

In the first place, dryer troubles would be far less frequent if, before constructing one, clay plant owners would consult with experts in this particular line. This does not mean consulting a man who has one particular type of dryer to build or sell, but rather consulting several of them and also obtaining the advice of an expert who has nothing to sell at all.

DRYERS REQUIRE MUCH CARE AND THOUGHT

There is no other part of a clay plant that requires so much care and thought in its design and construction as does the dryer. Any one of a dozen different makes of machines will grind the raw material or form the ware, and any one of a dozen kinds of kilns will burn it, but it is almost impossible to pick out, promiscuously, one of the many kinds of dryers available and not run against losses which at times are appalling.

A certain type of dryer may do splendid work on stiff-mud brick made of an easy drying clay, but will not work at all on those made of a tender clay. Again, one dryer will do excellent work on a stiff-mud brick, but will not dry successfully, soft-mud brick of the same material. One dryer of the tunnel type will handle successfully, hollow-ware on the continuous principle, while another tunnel dryer would have to be operated on the intermittent principle, in order to safely dry the same ware from the same clay.

Many clayworkers who have been long in the business are coming or have come to the realization that there is a great deal more to the drying end of the business than they had supposed. Some of them who have duplicated time and again, drying units which appeared to them to be best adapted to their particular case, have found that for years past it would have been possible to have installed systems which would have saved large amounts of money thru greater speed with smaller losses.

Putting aside the consideration of open-air dryers, the primary object of all artificial dryers is to *get rid of the moisture in the ware with the greatest speed at the lowest cost*, at the same time having due consideration for the safety of the ware. To obtain these results certain well-known principles or laws must be observed. Among the most important of these is the one requiring that all dryers must be so designed that the first stage of the drying be carried on *at very moderate temperatures and with only a slight movement of the surrounding atmosphere* or else in a *very moist atmosphere at higher temperatures and with a decided movement of the surrounding atmosphere.* Dryers designed to produce the latter conditions are, as a general rule, the most efficient in every respect. Those designed to produce the first mentioned conditions reproduce in reality, the conditions found in an open air dryer, their only advantage being a heating apparatus which makes them independent of weather conditions.

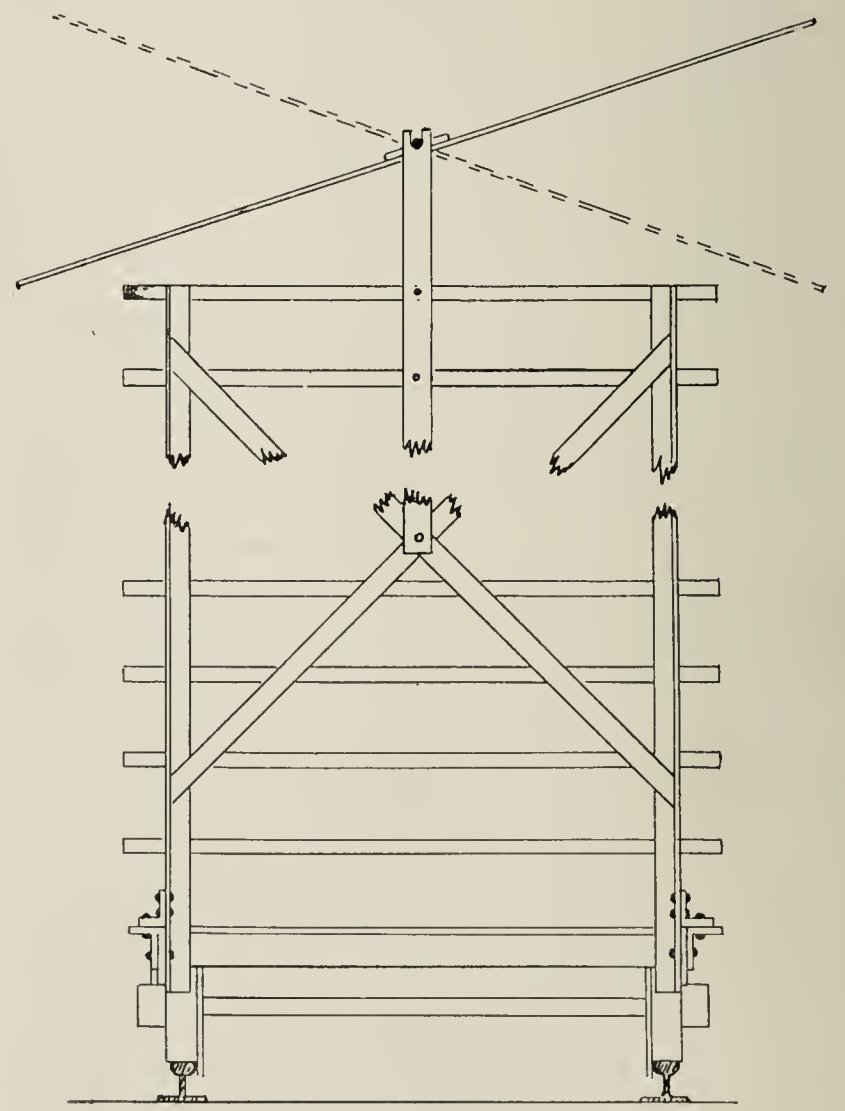


Fig. 1. Dryer Car with Weather Protector

OPEN AIR DRYERS

In spite of the advances made by the industry in late years, more open-air dryers are in use than is generally supposed.

Most of these, naturally, are to be found on plants using the soft-mud process which are operated only during the summer months. The drying is generally done in racks, the pallets being wheeled out on trucks and latter again moved by trucks from the racks to the kilns.

The cost of drying under these conditions is quite high, in fact higher than in most artificial dryers. There are several reasons for this, the principal one being the several handlings necessary between the machine and kilns. On large plants, too, the drying racks cover a large area and the distances covered by the truckers is considerable. On many plants the investment in racks amounts to a large sum and the exposure to the elements causes excessive depreciation.

Many clayworkers using this method of drying have sought for a means of eliminating some of these bad features without going to the expense of erecting dryer buildings.

The following method is suggested as a method of overcoming the difficulties encountered with the racks. Any number of tracks of a length convenient to the layout of the plant are laid down in the open. Regular soft-mud rack cars, stiff-mud or hollow-ware cars are provided of exactly the same type and gauge as used in artificial dryers. Each car is provided with a removable sheet metal "roof" which can be titled so as to protect the ware from rain and sun. The idea is shown in Fig. 1.

The greatest advantage of this system is that the ware is placed on the cars at the machine and not handled again until it is run into the kiln. There is also the great advantage of having both cars and rails ready for immediate use should it be decided to erect an artificial dryer at any future time. Other advantages are the decidedly lower upkeep on cars over wooden racks and the elimination of a very bad fire risk which, in most cases, is non-insurable.

INITIAL COST LITTLE GREATER THAN FOR RACKS

The difference in first cost is slightly in favor of the racks, but with the ever-increasing cost of lumber, this is not as much as would be supposed. Then, too, in case an artificial dryer is ever built, the investment in racks is a total loss whereas there is practically no loss in connection with the cars and tracks.

Very often a company starts out with insufficient capital to erect dryer buildings and permanent kilns and uses the open air method until able to afford better equipment. In such cases this method of drying is ideal, as there is no waste of capital involved.

The method is also useful on hollow-ware plants making large shapes which are difficult to dry safely in an artificial dryer. Such an open air system can be used during the summer months when a stock of the troublesome shapes can be laid in to carry over the winter months.

If necessary, a low wooden framework can be built on the outside of the two outer tracks, from the top of which rolls of canvas can be dropped to protect the outside cars from driving rains. The cars on the inside tracks are so close together that there is no danger to the ware from this source.

DRYER BUILDINGS

Whatever the type of artificial dryer built it must have walls and a roof. In many cases it has apparently been considered unnecessary to give a thought to the materials which have been used in the construction of the building. Lumber has been very popular, especially on the smaller plants. Brick has naturally been used most, while concrete, especially in roof construction, has had its share of users. Strange to say, hollow-tile has found favor with very few constructors.

Primarily, of course, the shell of the building is there for the purpose of preventing the escape of the heat to the atmosphere until it has done its work. It is not the idea of the clayworker that only part of the heat which he puts into the building shall do work; on the contrary, it is his earnest desire that all of it shall be utilized. Yet, in spite of this fact, how much effort is made to prevent radiation, to say nothing of more direct losses of heat? In not one dryer in one hundred has there been the slightest effort made to prevent radiation losses, and this in spite of the fact that on the other ninety-nine plants the great cry is for more heat for drying purposes. At ordinary drying temperatures insulation of walls and roof is an extremely simple matter; one in fact, that does not even involve extra cost.

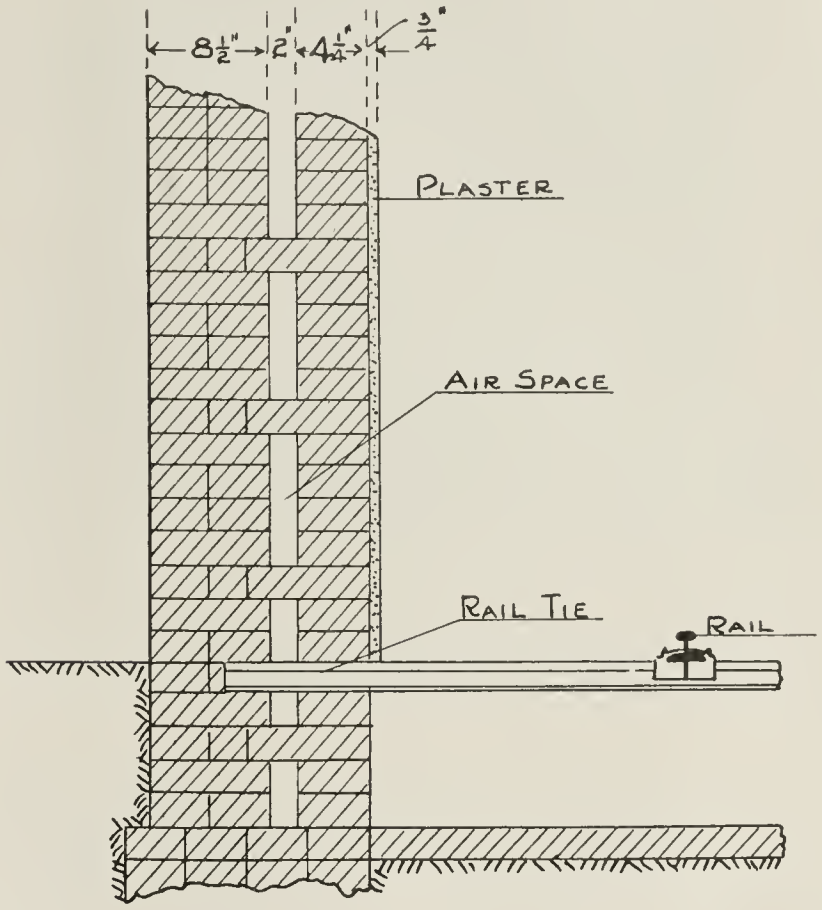


Fig. 2. Showing Outer Wall of Dryer with Air Space and Plaster

The use of lumber cannot be too strongly condemned for many reasons. In the first place, lumber anywhere about a clay plant increases the fire risk. When used in a dryer it is especially dangerous, for parts of the building are always as dry as tinder, and no matter what the method of heating may be, there is always a danger of a fire being started within the building itself. Frame buildings of this type are nearly always "thrown together" with the consequence that in a short time they become as open as a sieve. Even when care is taken to insulate the walls, the effort nearly always fails, due to green lumber and the temperature maintained within.

Even the lumber men, who formerly built all of their dryers of wood, are rapidly abandoning this type of construction. One lumber company recently made the statement that their new dryer, which was built of hollow-tile and had replaced an especially well-built frame dryer, was showing a saving of twenty-five per cent. in fuel and drying the lumber in twenty-five per cent. less time.

Of all the materials available, lumber is the least suited to the purposes of dryer construction.

BRICK WITH AIR SPACE FORMS GOOD DRYER WALL

Brick is an excellent material for wall construction, providing the walls are built with an air space. In a dryer building (while it is not necessary in order to carry the roof load unless the second floor is used) it is best to build the walls one and a half brick thick as shown in Fig. 2. It will be

noted that the air space is broken by header courses. This is done to break up air currents which otherwise would be set up in the air space and which would have free flow from bottom to top of walls. It may seem strange to specify a coat of plaster on the inside of the outside walls, but this has been found to give such excellent results that sooner or later it is bound to come into general use. On test, the difference between the radiation thru a plastered and unplastered wall is really remarkable. A wall plastered on both sides will radiate twenty per cent. less heat, and a wall plastered on one side approximately ten per cent. less than an unplastered wall. Clayworkers who are now troubled with cold outside tunnels would do well to note this.

The plaster will adhere to the wall if brick having a good suction are used on the inside and the mortar joints are raked out so as to allow the plaster to key into them.

Concrete walls for dryers are without question, a failure. True, they will hold up the roof and prevent *all* of the heat from getting away, but on actual tests they have proved themselves to be poor insulators. In comparing the fuel consumption of the outside tunnels of two radiation dryers, one having twelve-inch walls of brick and the other twelve-inch walls of concrete, the concrete dryer showed a fuel consumption thirty per cent. higher than the brick dryer. Both dryers were identical except for the material in the walls and were drying the same ware. If it were possible to build comparatively thin concrete walls with an air space, the difficulty might be overcome, but while this is possible it is not practical.

Hollow-tile is the ideal material for dryer walls. It not only has all the strength necessary, but the cells provide the necessary air spaces and the tile are usually scored for plaster. It is not necessary to use No. 1 tile for this type of building as it is always possible to buy good seconds, if you do not manufacture tile yourself, which will make an excellent job. When a tile wall is used it should be twelve inches thick and it is equally as important to plaster it as in the case of a brick wall.

Where dryer walls (not footings) extend below grade in order to protect flues, as is the case in radiation dryers and some waste heat and steam dryers, it is very necessary to have them absolutely waterproof. Due to the rapid evaporation on the inside of such walls, the amount of moisture drawn thru them is very great. This is generally made worse by the fact that eaves-troughs are seldom provided for the dryer buildings. The effect of moisture, and the radiation from outside walls combined, often decrease the efficiency of outside tunnels by one-half.

The walls below grade should be plastered on the outside with a mixture consisting of two parts sand and one of cement, which, after setting, should be given a good coat of tar. It should be borne in mind that this waterproofing below grade is as important as insulation above grade.

DRAINAGE

Clayworkers have become pretty well convinced of late that drainage of kiln bottoms is an absolute necessity, but not one in a hundred gives the dryer a thought in this regard.

Waste heat and radiation dryers are the types that suffer most in this respect. Waste heat flues and the under flues of the dryer building are more often than not, saturated with moisture during and after a wet spell. Moreover, it is the common thing to find a waste heat flue deliberately used as a drain for the surface water of a yard. *What sort of dryer efficiency can a clayworker expect who deliberately puts moisture from outside sources into a building which is designed to extract and conduct away moisture from the ware put into it?* There are some instances where it may be impossible to keep water out of the flues, but in most cases there is no excuse for its presence.

Waste heat flues should be drained in exactly the same manner as kiln bottoms, that is, by running drains under them and by draining surface water away from them.

The under-flue system of a dryer, whatever the type, should be underlaid with a series of drains that will conduct away every particle of moisture possible.

It is not uncommon to see plants on which the kiln bottoms are so well drained that they are always dry, but on which not the least precaution has been taken to drain the dryer and its flues. The results are that it is an impossibility to get dry ware during a wet spell, no matter how much fuel is used on the auxiliary heaters, and right there is a point. Does the average clayworker stop to figure why he uses so much more fuel in the auxiliary heater or else get so much more wet ware, in the spring, winter and fall? There is but one answer to that question and that is, *moisture in the flue system.*

(*To Be Continued.*)

PREDICTS WAR SCARE WILL HELP BUILDING

WITH INTERNATIONAL COMPLICATIONS of great moment pressing hard—with the threatening and terrible engines of destruction hovering over the horizon where only recently the dove of peace was flapping its wings, construction naturally has taken a "back seat," to use the common language of the day.

CONSTRUCTION VS. DESTRUCTION?

Already much affected by the war, the building business of the greatest city of the world now stands gazing at bulletin boards and scanning "war extras," thereby causing a slight cessation in operations. When there is talk of war, there is a tendency toward conservatism and caution in all walks of life, save possibly the munitions manufacturing business.

The talk of peace found the building interests of the entire Metropolitan district exceedingly optimistic and hopeful that 1917 was to be the banner year in point of new construction. The year started in first-class shape, but like a bolt from the blue, comes Germany's latest note and the breaking of diplomatic relations, quickly followed by the calling out of the National Guard and other similar war-like measures. Business accordingly hesitates, but there are many who feel that it is merely a case of hesitating.

"Sharp stimulus to building construction is looked for in the trade from the political developments of the moment," says the Dow Service Daily Building Reports under date of February 5th. This was evidenced by further tightening in building material quotations, including lumber and glass, and in a firmer tendency in steel and hydrated lime. All metals, including copper, brass and galvanized material, were stiffer in tone as the week closed.

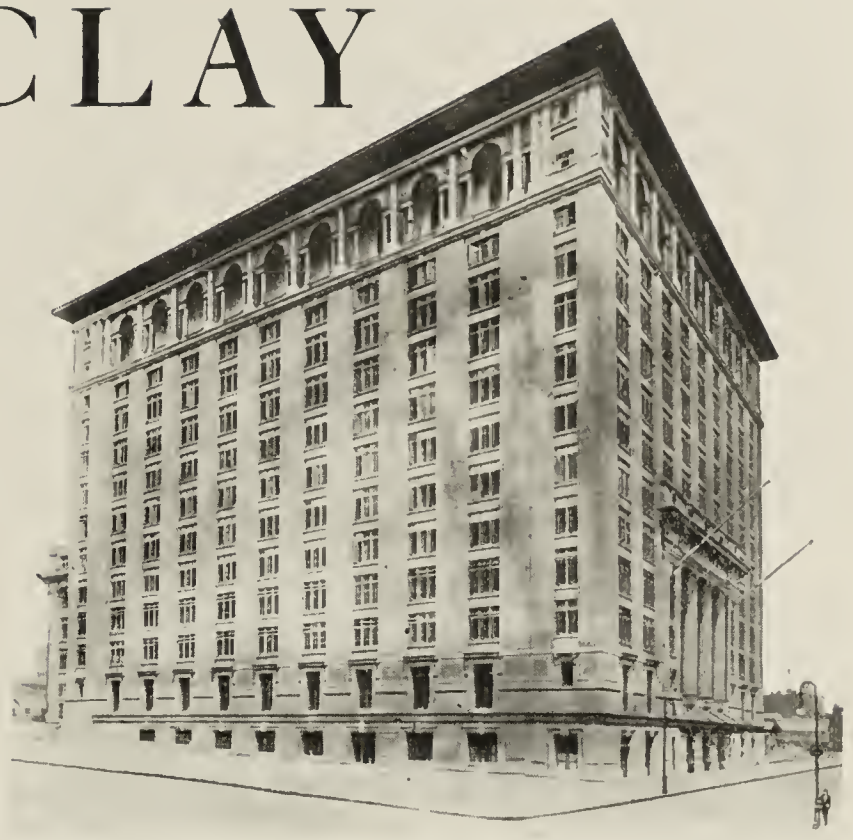
These changes and tendencies reflected the basic character of the building material market in times of national stress, because real estate and improvements constitute one of the safest forms of investment. Heavy selling in the stock markets has turned into savings accounts tremendous amounts of money and their natural outlet is thru mortgages.

BUILDING MATERIALS PRICES REMAIN FIRM

Not a single department of the building materials market showed a shrinkage during the week ending February 3rd.

(*Continued on Page* 374)

BURNED CLAY *to have* EXHIBIT *at* BUILDING SHOW



The Grand Central Palace, New York, N. Y., Where the Second National Complete Building Show Will Be Held March 5th to 11th

Tireless Energy and Unselfish Generosity of Cleveland (Ohio) Brick-maker, Together With a Progressive Few, Avert Humiliation of the Industry

AS THIS ISSUE of "Brick and Clay Record" goes to press, the combined clay products industry of the United States has produced from the depth of its trouser pockets the magnificent sum of $500 with which to demonstrate to the builders of New York and the East, that burned clay stands unrivaled as a building material.

This contribution is the result of the campaign undertaken by Robert C. Mitchell, salesmanager for the Barkwill-Farr Company, Cleveland, Ohio, as an eleventh hour attempt to save the industry from what in his mind would have been a disgrace and a serious handicap to the National Complete Building Exposition, to be held in the Grand Central Palace, New York, March 5th to 11th.

With the sort of enterprise that is characteristic of the lumber manufacturers of the country and those interested in practically every other structural material, Mr. Mitchell observed that clay products was not to have the proper showing in this exposition, owing to the lethargy of the men in the industry.

PROGRESSIVES CONTRIBUTE AS USUAL

As has been told in a previous issue of "Brick and Clay Record," about seven thousand letters have been sent to brick and tile manufacturers of the country. The list of contributors published below Mr. Mitchell has dubbed the honor roll. "Those who are familiar with the men of the trade," says Mr. Mitchell, "could name this list before they read it. It embraces those who are always to the front when something needs to be done for the cause in general. It would seem to me that those who are conspicuous by their absence might see a connection between the enterprise of those whose names appear and the success of these concerns, for in almost every instance, it is the successful concern that is not found backward in matters of this kind. What I mean is this—that the concern which is big enough to be unselfish in the interest of the whole, is the concern that invariably prospers."

There were some very bright spots in this campaign, according to Mr. Mitchell, even tho as a whole it has been discouraging. The generous contribution of the Pennsylvania Clay Club, Pittsburgh, and the good co-operation of the Detroit Brick Manufacturers' and Dealers' Association especially encouraged Mr. Mitchell.

While the total sum received is not sufficient in itself to make a display, there is a project on foot for co-operation with one or two New York manufacturers to supply such an amount as is needed in making a creditable exhibit in the show.

The plans for the display are not complete at this time, but according to Mr. Mitchell, there will be a brick section in the show demonstrating in a general way the value, beauty and utility of clay products as a whole.

The thousands of brick men who will attend the National Brick Manufacturers' Association convention at New York at the time of the show and who, of course, will be visitors at the show, probably will not be ashamed of the showing made, and especially will those who contributed feel well repaid for their part in it, since it would have been humiliating, no doubt, to have found every other material in the show except clay.

The following is the list of contributors to the brick and clay exhibit:

THE HONOR ROLL

Pennsylvania Clay Club, Pittsburgh, Pa.; Detroit Brick Manufacturers' and Dealers' Association, Detroit, Mich.; The Cleveland (Ohio) Brick and Clay Company; The Newburgh Brick and Clay Company, Cleveland, Ohio; The Ohio Clay Company, Cleveland, Ohio.; The Everhard Company, Massillon, Ohio; The Medal Paving Brick Company, Cleveland, Ohio; Keim Brick and Tile Company, Louisville, Ohio; National Fire Proofing Company, Pittsburgh, Pa.; Craycroft-

Herrold Brick Company, Fresno, Cal.; Standard Brick Manufacturing Company, Evansville, Ind.; Baltimore (Md.) Brick Company; Thomas Moulding Brick Company, Chicago, Ill.; The Wadsworth (Ohio) Brick and Tile Company; J. J. Shepard; The Alliance (Ohio) Clay Products Company; The Richland (Iowa) Tile Company; The Collingwood (Ohio) Brick Company; John Ringle, Wausau, Wis.; J. C. Kline, Wickliffe, Ohio; Webster and Keyser, Philadelphia, Pa.; H. C. Carroll and Sons, Philadelphia, Pa.; The Barkwill-Farr Company, Cleveland, Ohio; Wm. A. Wallhead; Georgia-Carolina Brick Company, Augusta, Ga.; The Burton-Townsend Company, Zanesville, Ohio; John H. Black Company, Buffalo, N. Y.; Dover (Ohio) Fire Brick Company; Los Angeles (Cal.) Pressed Brick Company; The Metropolitan Paving Brick Company, Canton, Ohio; Mason City (Iowa) Brick and Tile Company; The Dunn Brick Works; Consolidated Brick Company, Horseheads, N. Y.; Western Brick and Supply Company, Hastings, Nebr.; Cary Brick Company; Keystone Clay Products Company; Western Brick Company, Danville, Ill.; Bessemer Limestone Company, Youngstown, Ohio; Wynn and Starr Company, Trafford, Pa.; The Colonial Pressed Brick Company, Mogadore, Ohio; The Queen City Brick Company; Hocking Valley Fire Clay Company, Nelsonville, Ohio; Darlington (Pa.) Brick and Mining Company; Haeger Brick and Tile Company, Dundee, Ill.; Hydraulic-Press Brick Company, St. Louis, Mo.; Wm. H. Gifford, Wisconsin Lime and Cement Company, Chicago, Ill.; Alton (Ill.) Brick Company; Geo. T. Dickover and Son, Wilkes Barre, Pa.; N. P. O'Neal, Hope, Ark.; Brower and Best, Thompsonville, Conn., and L. L. Stephenson, Lovick, Ala.

NEBRASKANS MAKE *a* "DRIVE" *of* PROGRESS

WHILE THE REPORTS of the conventions of other associations are announcing the success of their eighteenth, twenty-fifth, or thirty-eighth annual meeting, that of the Nebraska Brick and Tile Association makes its appearance with the head-line "Second Annual Convention" prominently displayed. And, altho the "baby" of state organizations from the standpoint of years, yet its accomplishments at its second annual convention, held at the Lincoln Hotel, Lincoln, Neb., on January 16th, 17th, and 18th, have earned for it a prominent place in the ranks of clay manufacturers' organizations.

When the gong sounded at 10:45 on Tuesday, January 16th, twenty delegates had finished the allotted time for "glad-handing," and had settled down to listen to some exceedingly valuable papers and enter heartily into the discussions that were scheduled to follow. Right at the outset, the association hit the bull's eye and rang the bell with a talk on "Cost Accounting," by Professor O. R. Martin, of the Department of Commerce at the University of Nebraska. A lively discussion followed the reading of this paper and brought to a climax the idea of establishing a uniform system of accounting on the plants of all the association members, so that, at their next meeting, an intelligent discussion of costs and an interchange of data with fellow manufacturers may be made possible. The entire morning was occupied by the discussion on cost accounting, and when the dinner-bell was heard, the members adjourned to the Commercial club where a lunch was served, according to the program, by "Get Allyecan."

WARM WELCOME RECEIVED FROM U. OF N.

In the afternoon a warm welcome was extended to the association by Chancellor Avery of the University of Nebraska, who assured the delegates that the university was anxious and glad to do anything possible to assist in building up the clay products industry in that state, and to aid its organization.

When the interchange of courtesies had finished, Professor George R. Chatburn, in charge of the testing laboratories at the university, gave a lecture and demonstration on the subject of "Testing Brick," that covered two hours. The members were exceedingly interested in watching the demonstration of how the strength of various clay products was determined by the use of the laboratory testing machines.

When the demonstration was concluded, a sinking of that region immediately under the belt warned that it was again time for juggling the silver and the members prepared for the informal dinner that was scheduled for the evening. Disappointment was felt at not having Dr. Marr of the Hydraulic-Press Brick Company, St. Louis, Mo., present to deliver his address on "Salesmanship," but in his absence, the evening was devoted to a further discussion of uniform cost systems and testing clay products, which had been taken up earlier in the day.

ASSESSMENT INCREASED TO FURTHER PUBLICITY

But where the spirit of progress stood out in strong relief was in the action taken by the members at the business meeting held on Wednesday from 8:30 to 10:30 A. M. —action of which many of the larger associations might have been well proud.

Enthusiastic over the things that had been accomplished by the association during its short period of existence, the members voted to increase the assessment to three cents for every thousand brick sold, payable quarterly. During the first year the assessment amounted to one cent for every thousand brick, the second year two cents a thousand was decided upon, and at the last meeting the peg was placed a notch higher. The money obtained in this way is to be used in promoting the use of burned clay products thruout Nebraska by means of more and advanced publicity.

At this meeting, the subject of freight rates also came in for its share of worthy action. For some time, clay products manufacturers of that state have been confronted by rates that are altogether unsatisfactory, and it is hoped that the committee appointed to bring about more favorable conditions in this connection will achieve success.

Following the business meeting, Professor I. D. Wood gave an excellent talk on "Tile Drainage," and was followed by Professor H. J. Young, who made some additional remarks about this subject. Besides giving the members present many new thoughts regarding tile drainage, these men provided them with ideas that can easily be incorporated into good sales talks for drain-tile.

After the "inner man" had again been completely satisfied, the work of the afternoon was given a flying start by Professor George Borrowman's talk on "Nebraska Clays," in which he illustrated the handling of clays with small models he had prepared in advance and in which he showed the amount of shrinkage obtained under certain conditions by small brickettes that he had previously burned to different temperatures. Following this, a trip was taken thru the museum at the state university, which contains specimens possessed by no other museum in the world. Following the trip thru the museum, Professor Tell W. Nicolet gave a very interesting talk on "Designs

in Brick and Tile," which he illustrated with views of new work that he had prepared.

FUN—THE KEYNOTE OF ANNUAL BANQUET

In the evening the annual banquet of the association was held, and a memorable occasion it was. Frank I. Ringer, secretary of the assoeiation, presided as toastmaster and "kept the pot a-boiling." As a souvenir of the oceasion, small drain-tile about the size of a napkin ring were given to eaeh of the members present. These little tokens of good fellowship were made by Professor Sjogren of the university and Mr. Furgeson of the Yankee Hill Brick Manufacturing Company of Lincoln. However, their love for their secretary prompted the delegates to care for his needs at the banquet table in a much more demonstrative manner, and in place of the small tile napkin ring he was presented with a six-inch section of a five-ineh drain-tile just of a convenient size to accommodate the big red towel that several of the larger members, by use of foree and a huge safety pin, firmly attached to his neck.

The evening was devoted to an illustrated talk by Dean O. V. P. Stout of the College of Engineering, on "A View of the Royal Gorge," and to talks from numerous members and guests, making a very profitable and pleasant conclusion to the second day's program.

The third and last day of the convention was opened with a business meeting at whieh the following officers were re-elected: B. Koehler of Geneva, president; I. S. Nichols of Columbia, vice-president; C. Klose of Lincoln, treasurer, and Frank I. Ringer of Lincoln, secretary.

URGES DEVELOPMENT OF FARM MARKET

Professor Sjogren was next on the program with an unusually fine talk on the "Need of Investigation and Extension in the Use of Brick on Nebraska Farms," in which he related the experiences of the university in its work of educating the farmers in the value of permanent and fire-safe construction. Blue-prints that had been prepared by the university for burned clay farm buildings were used to illustrate the talk.

Following up the subject of developing a farm market, Matt L. King, secretary of the Permanent Buildings Society of Iowa, talked to the association on some of the things that Iowa manufacturers had accomplished in this direction, which closed the schedule of papers for the "second annual convention."

An account of the eonvention, however, would not be entirely complete without some mention of the beautifully designed program that was given out at the meeting, the cover of which was designed by Tell W. Nicolet, landscape engineer at the university. It was printed in two colors, and from a typographical and artistic point of view it was unusually attractive.

The members undoubtedly went away from the convention well satisfied that they had been many times repaid for their trouble and expense in attending the sessions, and will be back on the job next year with that same spirit of enthusiasm that has been displayed at the two conveitions that have already made the "baby" association one of the most progressive in the industry.

* * *

Orders New Chicago-Indiana Rates Cancelled

The Interstate Commerce Commission handed down a decision recently relative to proposed changes in brick rates from Michigan City, Ind., to Chicago, Ill. In their syllabus in this case the commissioners say:

"Proposed increased rates on brick in carloads from Michigan City, Ind., to Chicago, Ill., and adjacent destinations, and from Porter, Ind., to the same destinations, except Chicago, found not justified. Suspended schedules ordered to be canceled."

By schedules filed with the commission to take effect on April 20th, 1916, the Michigan Central proposed to limit the application of its present rates on brick from Michigan City, Ind., to Chicago and adjacent points in Illinois and Indiana, to stations of its own line, and to discontinue the absorption of the switching charges of connecting lines, thereby making higher charges applicable to shipments involving switching movements by connecting carriers. Similar increases were proposed in the rates on brick from Porter, Ind., to the same destinations, except Chicago. The proposed change was protested by the Ohlemacher Brick Company.

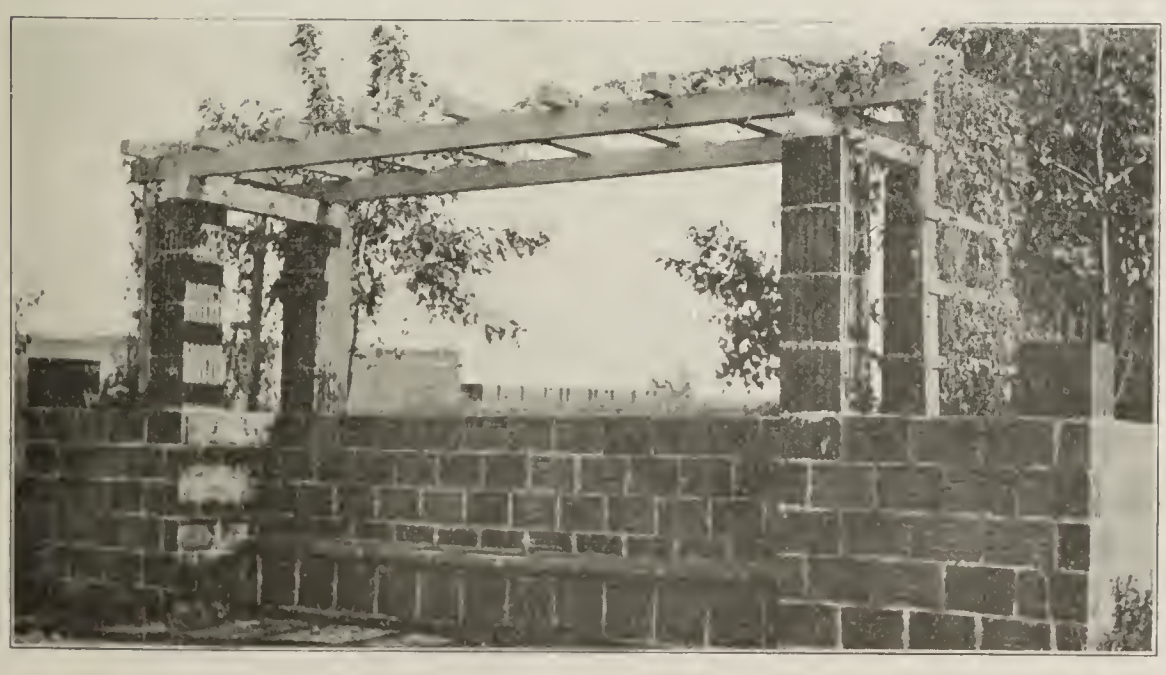
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Another Big Plant for Iowa

Work is soon to be started on the construction of a large brick and tile plant at Sheffield, Iowa, which is to be operated by the Sheffield Tile Company, and which is to represent an investment of from $125,000 to $150,000.

Altho a concern entirely separate and distinct from the Sheffield Brick and Tile Company, which now operates a large plant at that point, the Sheffield Tile Company will be managed from the same office and by the same executives as is the first-mentioned company. The officers of the new concern are C. C. Carhart, president and treasurer; L. B. Carhart, viee-president, and H. L. Carhart, secretary, a trio noted as being alive and progressive.

HOOSIER PLANT *erects a* USEFUL HOLLOW-TILE EXHIBIT



¶ The unique garden seat shown in the accompanying illustration and which is located at the entrance of the American plant of the Vigo-American Clay Company, Terre Haute, Ind., offers a striking demonstration of the flexibility of hollow-tile and of the surprising results obtainable with an intelligent use of that material.

¶ This settee, which has a seat on both sides, not only creates a favorable impression upon the chance visitor, but serves a utilitarian purpose as well, since it provides a resting place for the workmen while they are waiting for the train which they use in returning home from the plant.

HIGH COST *of* IGNORANCE

Or the Cost System's Part in Scientific Industrial Efficiency; a Valuable Addition to the Literature on this Very Important Phase of Clayworking

By Dwight T. Farnham

Read Before the Iowa Clay Products Manufacturers' Association at Its Annual Meeting Held January 16th to 18th, 1917, at the Iowa State College, Ames

ABOUT TEN YEARS AGO New York was the scene of a great taxi-cab mystery. Contrary to what you might imagine, the details were aired, not in the criminal courts, but in the courts of bankruptcy. Until the mystery was unravelled, however, it was unpleasantly exciting for those involved. At that time automobiles had emerged only recently from the era where every time you took a ride in one, you made a small bet with yourself as to whether you would come home in the car or on foot. Street gamins still yelled, "Get a horse," and no "show" was complete without a scene in which the comedian crawled under a motor and after an explosion was dragged out with a black eye.

The taxi-cab business was in its infancy *and the infant mortality certainly was high!* A company would be formed, would show good balance sheets for two or three years, pay generous dividends and then fail. The worst of it was that no leaks could be detected, there were no signs of improper accounting methods and the business in each case seemed to have been conducted carefully and honestly. Propositions which figured out well on paper lived up to their promoters' hopes for two or three years—and then failed.

THE MYSTERY SOLVED

The solution of the mystery—like the ending to all good detective stories—was so simple when it was discovered that no one could be found even to play the part of Dr. Watson and murmur "marvelous" when the analyst discovered the culprit. The answer was simply this—motor car styles were changing so rapidly at that time, that a car was completely out of date in three years. No one would ride in one three years old and that meant that the heaviest part of the taxi-cab companies' investment had to be renewed every thirty-six months. What wasn't out of style was rattled to pieces beyond hope of repair by New York pavements. As a result a taxi-cab company which had a hundred thousand dollars worth of cars in 1904 *had ten thousands dollars worth of junk in* 1907. The ninety thousand dollars worth of loss—which they did not realize was going on because new cars were bought gradually and the companies had been careful not to neglect repairs—took them into the bankruptcy court at the end of the three years. The man who had been called in to solve the mystery recommended a depreciation charge of thirty per cent. and since that time there have been fewer mysterious failures.

SHRINKING PROFITS NECESSITATE COST SYSTEM

About four years ago a man who is president of a half dozen corporations told the writer with a great deal of pride that that year he had begun to charge off depreciation. *He had been doing business thirty years and had amassed close to a million dollars without even finding out that every building he had put up, so to speak, ceased to exist after twenty-five years.* In a case of this sort, the American spirit of the past would argue: "He never knew what depreciation was, hey? But he made a million, didn't he? Well, what's good enough for him is good enough for me!" That sort of argument may be what they used to call "pretty slick" in upstate New York, but belief in it can only lead to disaster in this day and age. Profits of thirty and forty per cent. on the capital invested are a thing of the past and our conservers of natural resources and our labor vote mean to keep them dead and buried. In those good old days a man could make enough profit so that seven or eight per cent. more or less didn't matter. Now, that seven or eight per cent. is *the whole profit,* the corporation manager who doesn't guard every penny of it for his stockholders is thrown into the discard as a failure.

"A SIMPLE COST SYSTEM WOULD HAVE SAVED HIM"

Not long ago the general manager of one of our largest middle western coal companies commented to me upon an announcement just made in the daily papers. The owner of a chain of coal properties had gone to smash financially. The man had been a pioneer in the district, a tireless worker and had been astute enough in the early days to secure some of the best coal lands in the state. "That man," said my friend, "has kept this market in a turmoil for thirty years and at last he has reached the end of his rope. He could always undersell his competitors because he never knew what it cost him to do business. He has been losing money steadily and mortgaging his property right and left for years. This is the end—and a simple cost system would have saved him."

In these three examples you have the picture of a certain phase of an American industrial era which is passing—failure thru ignorance, and success thru luck. Altho American business has produced some of the finest examples of the corporation executive in the world, nevertheless there has been good reason for Bradstreets' statement that more than ninety per cent. of our business ventures fail. Our natural resources have made loose methods of doing business possible. Now we must trim ship and prepare to meet the storm of competition which will break upon the country once the European war releases its millions of men.

WHEN ULTRA-CONSERVATISM REIGNED

In the days when our grandfather operated a small brickyard or made a few tile in connection with the work on the farm, he needed no cost system to keep track of the work he and his hired man did each day. They had to be there anyway and what they could earn in this way at odd times was "pure velvet," or at the most, could be reckoned in the same way as the corn crop or the apple crop was reckoned on the other portions of the farm.

Later, our fathers expanded this section of the farm into

a sewer-pipe factory or into a paving-brick plant. They had been brought up to honor their father and their mother and they hadn't been sent to college to imbibe what they called "fancy notions." What was good enough for the "old man" was good enough for them. It was a period of conservatism and of faith in the old ways. As long as communities were more or less isolated and there was only one factory in a community, ultra-conservative methods were eminently successful. Clay plants made money and reinvested their earnings. A period of expansion followed. The population increased but the factories increased faster than the people. Competition became unbearable. Consolidation followed, until we now have ten million dollar corporations turning out hundreds of tons of clay products every day. The cost system that grandfather and the hired man used on the farm won't do, and the manufacturer who tries to make it do is following the road to the land of oblivion inhabited by the American Indian and the dodo.

THE INHERENT DISLIKE FOR THE NON-PRODUCER

One reason why our conservative manufacturers have hesitated to install elaborate cost systems is because of an inherited dislike for the non-producer. Any one of the boys who sat around on grandfather's farm was either urged to go West or else was made into a lawyer, a minister or a doctor. He wasn't popular on the farm unless he took hold and helped. Consequently, a good many of us have inherited a sneaking feeling that the fellow who sits around in a white collar and pores over a big book somehow isn't keeping his end up around a clay plant, and we are prone to refer to his salary as "overhead expense" or as "burden on the productive labor." Our instinct, moreover, has not been so much at fault in this as certain types of expert accountants would have us believe. There is no doubt that a good deal of money has been wasted and is being wasted today in preparing elaborate cost figures that are never looked at by the active executive—or if they are looked at, what is regarded as a duty is done in a prefunctory manner and results in little or no good.

A CASE WHERE COST FIGURES WORKED INJURY

In some cases cost figures, even when prepared very carefully and very accurately from the accounting standpoint, do positive harm in an organization. One old brickmaker who was superintendent of a paving-brick plant told me that all he wanted to know was how many brick he got out of the machine every day and how many men he had on the job—"and he didn't give a hoot in hades what those bookkeepers down in the office said." Later on, I found he was quite right. An ingenious cost clerk had devised an account which he called "In Suspense" and every time the old fellow's cost of production went up he lopped off a few thousand dollars and stowed them away until a period of low costs ensued, when he took them down off the shelf, as it were, and ran them into the costs. In this way the cost clerk secured a beautifully even cost showing which did not offend his artistic eye, and when the general manager took the sheet out to our superintendent, the latter could tell, of course, that the figures did not reflect operating conditions at all. As a result his contempt for "liars who figgered" was something abysmal.

There is no use trying to fool the man on the job. If you call him down when he knows he has done well—*and he knows*—he is discouraged, and if you praise him when he knows he has made a fizzle of it, he sizes you up as a fool. Nothing so destroys the morale of an organization as unjust criticism—*except unjust praise.* The first destroys initiative. The second undermines the subordinate's confidence in his superior's ability.

FUNDAMENTAL PRINCIPLES OF COST KEEPING

There are certain fundamental principles which we must recognize in devising any cost system. The expense of compiling cost figures is a direct burden on the business and must be subtracted from the net profits. To prove their right to existence, therefore, costs must earn a profit just as surely as do those departments which are known as the productive departments—where the raw materials are processed by direct labor.

There are three ways in which costs can justify their existence:

I. They can assist the management and the factory executives to operate the manufacturing departments more economically.

II. They can assist the management and the sales department to sell more efficiently, by urging to higher prices and to specialization in the more profitable products.

III. They can assist the management in the determination of the company's financial and general policy.

FIGURES SHOULD ACTIVELY ASSIST THE MANAGEMENT

To justify their existence, then, the costs must be arranged in such form as to actively assist the management in the administration of the business. When necessary, they should go even further and speak with sufficient insistance to force the management to the correct decision.

The management of a modern factory employing three or four hundred men is an intricate and difficult affair. The superintendent needs all the help we can give him. He should be able to look upon the general manager as his best friend—as a friend who will give him advice and assistance when he wants it and who will guide him back to the right path with the firm kindness of a father when he needs it.

The general manager is also a busy man. It is impossible for him to be conversant with every detail of the business, and yet he must be ready to act and must act quickly and without hesitation when the occasion demands. Furthermore, his decisions must be right fifty-one per cent. of the time or he is a failure, and the business is a failure. Inasmuch as there are only twenty-four hours in the day, and since there is a limit to every general manager's physical endurance, the information which comes to him must go thru a screening-out process before it reaches him. It is his duty to see that what is important reaches him—*and only that.*

ONLY NECESSARY INFORMATION SHOULD BE SHOWN

An efficient cost system is one which brings to the factory superintendent and to the general manager only what each must know to do his work with the greatest effectiveness. No more and no less. The form in which this information reaches the executive is relatively unimportant. It is just here that many of the advocates of cost keeping systems have received their second black eye. Our friend the old-time brickmaker knew that he could run his factory more effectively if he knew every evening what his machines had turned out and how many men he had had at work, than he could by means of an elaborately detailed cost of production prepared from two to six weeks after the brick were made, by an accountant who knew nothing about operating conditions at the factory.

The best expert accountant is one who has been a factory executive. If he has not had actual experience with manufacturing problems he is prone to prescribe elaborate forms which he delights to design with only a cursory thought for the bills which the manufacturer must pay for stationery and clerk hire, and is likely to give no thought whatsoever to making the cost system help the harassed factory executive solve his problems. Such information as is designed to be of assistance in the operation of the factory reaches the executive when the occurrences recorded are lost in the dim past of ancient history and the more elaborate the cost system, the more antediluvian is the history.

(*Continued on Page* 373)

TESTING MOLDING PLASTER *and* HANDLING BODY CLAYS

The Fourth of a Series of Articles by This Author on the Manufacture and Use of Architectural Terra Cotta

By Herman A. Plusch, M. S., Cr. E.

Research Engineer, Abrasive Company of Philadelphia, and Consulting Ceramic Chemist and Engineer.

BEFORE getting into the clay base of terra cotta manufacturing, we will consider briefly standard specifications and tests on plaster of Paris, so largely used in the industry for model and mold making.

SPECIFICATIONS FOR MOLDING PLASTER

Fineness

Not less than ninety per cent. thru one hundred mesh standard screen and ninety-nine per cent. thru a forty mesh standard screen. The plaster should be thoroly dried before screening.

Moisture Test

A weighed sample of dry plaster shall be heated for two hours at 225 degrees centigrade, and the loss shall not exceed seven per cent., nor be less than 4½ per cent.

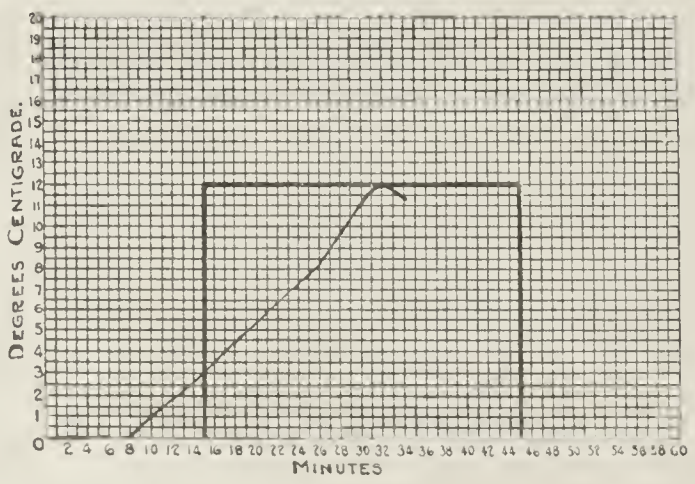
CHART
FOR
RECORDING TESTS
ON
TERRA COTTA MOULDING PLASTER

CAR NO.....DATE RECD.....DATE TESTED.....

FINENESS THROUGH A 100 MESH SCREEN.....%.....

FINENESS THROUGH A 40 MESH SCREEN.....%.....

SETTING RECORD.



TEST MADE BY.....

NOTED BY.....

HP.-1917

Fig. 1. The Use of This Chart Makes a Convenient Method for Recording Tests of Various Plaster Consignments

Maximum Temperature Rise

Not less than twelve degrees centigrade. This test to be made as follows:

Plaster to be tested and the distilled water to be used are allowed to stand long enough to come to the room temperature before the work is started. The temperature of the room, plaster and water are recorded with each test. The temperature preferably should be between seventy and seventy-five degrees Fahrenheit. No tests shall be made at temperatures above eighty-five or below sixty-five degrees Fahrenheit.

Proceed by mixing two hundred grams of plaster with 150 cubic centimeters of water, stirring vigorously for one minute. Then insert the thermometer in the center of the mass. Record the temperature each minute until the maximum temperature has been passed and a complete curve has been drawn for comparison with other samples. The record is timed from the minute that the plaster and water are first mixed. The initial temperature for the curve is obtained by taking the average temperature of the plaster and water before mixing. The mixing temperature rise will be the total increase in temperature during setting (taking as the initial temperature the average of the temperatures of the plaster and water before mixing) and shall be recorded in degrees centigrade.

Time for maximum temperature rise:

The time that elapses from the mixing of the plaster until the point of maximum temperature is reached shall not be less than fifteen minutes nor more than forty-five minutes, and this shall constitute a check of the setting time of the material.

Wet Bulk

The wet bulk shall not be less than one hundred cubic centimeters of set plaster for one hundred grams of plaster as received in cars. This is to be determined by the suspension test method as follows:

Sprinkle about 1,360 grams of plaster uniformly into an open pan of water, using a surplus amount of water and allowing the plaster to soak for two minutes. Then pour off the excess water, stopping the moment any plaster starts to run out. Then mix the remainder into a paste and pour into a mold for volume determination.

At the plant they generally use a large tub, filled about two-thirds full of water, and then sprinkle the plaster into the water allowing it to soak two to three minutes. They then pour off the surplus water and mix up the remainder by hand.

MOST DESIRABLE PROPERTY IN MOLDING PLASTER

Of greatest importance in terra cotta molding plaster

is a material that will produce the maximum volume with the least amount of plaster. The direct measure of this is what is termed the wet bulk of the material.

Too great expansion in plaster is detrimental as, if the



Fig. 2. Terra Cotta Model with Two Sides of the Mold Made, But with the Front, Back and Top of the Mold Still to Be Made

plaster employed in taking molds from models has too great expansion, it would produce work too large in size and increase assembling or fitting costs.

The accompanying chart for recording tests on terra cotta molding plaster makes a convenient method for recording tests of various plaster consignments. The test for moisture has been eliminated as not being essential. Plaster setting curves approaching the one shown on the chart will indicate a good consignment.

While on the subject of plaster, please note illustration marked No. 2. Here the model is shown with two sides of the mold made. The front, back and top of the mold are still to be made. The top of the mold, which will be taken over the ram's head shown, will have to be a "piece mold" to allow proper relief of the terra cotta when pressed.

The illustration marked No. 3 shows the modeler at work preparing a piece for the molding department. A plaster mold will be taken over this piece and from this mold the desired number of reproductions can be made. It is this ease of reproduction that effects economy in terra cotta manufacture.

TESTING BODY CLAYS

Whether one clay or several are used in the manufacture of the terra cotta body, each consignment should be tested and a record of the test kept for future reference. A great deal depends upon the finished size of the burned pieces of terra cotta, and therefore, this factor should be as accurately determined as possible.

A simple and effective series of tests for each lot of clay and such as will give enough information for practical purposes consists in—

First, washing a definite amount of clay thru a two-hundred mesh sieve and noting the character and amount of the residue.

Second, press a bar of each clay about two inches square and ten inches long and note carefully the drying shrinkage and general behavior before firing, but more especially the total shrinkage, both drying and firing.

Third, before firing, glaze each bar, always using the same type glaze, and note its action after firing.

A fourth test is also useful in determining the general uniformity of clay, namely, the absorption, reckoned in per cent. increase in weight of the trial pieces after twenty-four hours immersion in water.

If these four simple tests are followed, the results tabulated and the fired bars carefully measured and examined, they will give evidence enough of regularity, purity and comparative working qualities of the clays in use. These tests should be made in regular kilns, as test kiln results are apt to be misleading.

A convenient chart for tabulating these four simple clay tests is shown in these columns. The chart takes care of ten consignments and the averages are thus easily and readily computed.

COMPOSITE BODY NECESSARY IN MIXING CLAYS

After determining the qualities of the clays in use by following the tests above outlined, it will be an easy matter to classify new clays for use in the terra cotta body—should changes be necessary. Where more than



Fig. 3. A Modeler at Work Preparing a Piece for the Molding Department

one clay is used, there should be a composite body made up of clays, some or one of which is plastic and gives strength to the ware in the green state (generally this clay will shrink considerably, have a tendency to warp,

will burn dense, and keep down the porosity of the finished material), another or other clays should burn open and straight. An intermediate clay is useful, one which has burning characteristics between the dense and open-burning clays.

HANDLING CLAYS CONTAINING SOLUBLE SALTS

Clays for terra cotta purposes should be free from soluble salts, iron pyrites or other contamination which would be detrimental to the appearance of the finished product. Too sandy clays, unless offset by very fat clays, are not to be recommended as they tend to produce cracking in the body and shivering in the glaze. Too much fat plastic clay cannot be used as the material would not dry safely, that is, be free from cracking and warping, and would have a tendency also to warp in firing on account of the fat, plastic clay content.

Should soluble salts be encountered in the clays used they will be made evident by the glaze peeling from the ware, either before or after firing, or if soft slips or sprays of grey and buff colors are used, the soluble salts may appear as a green scum after the material has come from kiln. This green discoloration also comes from a fungus growth on too soft slip surfaces. Precipitated barium carbonate which is now being produced in this country in fairly large quantities, when introduced in the body, is the remedy when clays are not too heavily charged with soluble salts, such as alum, and so forth. Nearly all clays carry some soluble sulphates and they should be neutralized by barium carbonate, hydrate or chloride. The carbonate is, however, the form of barium most generally used.

Barium carbonate, if used to arrest the action of soluble salts, should be added to the clay during preparation in such a manner as to become thoroly incorporated with the mass, that is, spread over the whole mix gradually and not thrown in all at once and in one spot, trusting to later mixing to thoroly disseminate it.

GROG

Grog, grit or previously burned and ground clay, sized thru screens, constitutes about one-third of the mass of most terra cotta bodies. There is much individual preference regarding the best size of grog and the amounts of the various sizes. The writers' experience has been that the dust should be eliminated from the grog before using, also large particles. Those over sixteen or twenty mesh to the inch should be eliminated. Too much very fine grog causes trouble in drying and firing as it produces cracking. The very coarse particles of grog cause small checks to appear in the glaze after firing. The clay seems to shrink away from the coarser particles and leave small cavities over which the Bristol glaze types, so largely used on terra cotta, will not flow. To this end, after the proper size of grog is determined, the screens should be watched very carefully to make sure that the sizes thought to be in use are actually in use. A good method to check the sizes of grog is to have two small hand screens, one for maximum size required and one for minimum size required, and have a daily check made by the foreman in charge of the clay milling department, or by the laboratory, of the sizes actually being produced. These simple checks will locate holes in screens or defects in the sizing and grinding apparatus.

Grog material should be carefully selected. It should be previously fired to a higher temperature than will be reached in burning the terra cotta, unless it is of such a nature that it shrinks uniformly and its shrinkage can be taken definitely into account. Clean saggers and broken terra cotta make the best available grog, altho vitreous sanitary ware, certain fire-brick, stone-ware and other clean, reliable materials are useful for some classes of work. Silica-brick, slagged fire-brick, on account of the sulphur content in the slag, and all foreign impurities must be kept out of the grog, if the best results are desired.

GROG-MAKING PLANT UNDER CONSIDERATION

The writer understands that a reliable clay mining concern is considering a calcining and grinding plant that could produce grog as desired. At the right price, there ought to be a demand for such a material. It should be clean, uniform, only fired once as against other material

Clay
Name or No.

CLAY TEST RECORD

Date Received	Car No.	% Residue on 200 Mesh	Character of Residue	% Total Shrinkage	Action of Glaze	% Absorption	REMARKS	Test No.
								1
								2
								3
								4
								5
								6
								7
								8
								9
								10
AVERAGE OF TEN TESTS								

Make Charts like above for each clay.

A Convenient Chart for Tabulating the Results of Clay Tests, which Takes Care of Ten Consignments

such as saggers, which may have been fired and mended many times. The purchase of prepared grog would eliminate from the terra cotta plant the most troublesome, dust-creating and expensive machinery to maintain. Uniformly burned grog would also be a helpful factor in figuring finished sizes of pieces.

The method used in figuring the finished size of pieces is simply an arithmetical one, namely, take the per cent. of shrinkage in each clay used and the per cent. of clay in the body (considering the grog, if previously fired to a higher cone, as having no shrinkage). Thus we have data to figure the total shrinkage direct. If it is desired to work to a definite shrinkage scale and to make the body shrink to suit this scale, then clays and grog must be figured in proportion to their shrinkages.

PREPARING AND WEIGHING CLAY BATCH MIXTURES

The method of preparing and weighing clay batch mixtures varies in almost every plant. Processes familiar to the writer are the soak-pit method, where the wheelbarrow is the unit of volume measure. After the soaking comes pugging. The wet-pan is largely in use where crude clay, as delivered, is mixed with the grog and then pugged, either once or twice. Volume is used as the measure in some cases, and weight in others. Clay partially dried and crushed, measured automatically or otherwise, and the total mix in a granular or pulverized form delivered to a pug for preliminary mixing, and then run thru a second pug, has proved in the writer's experience to produce the most thoro mixing and to give the most uniform results. The power originally used in pulverizing the clays is more than saved by the elimination of the wet-pan. Terra cotta clay mixtures prepared by this last process not only give more uniform shrinkage results, but also tend to produce straighter material.

HOW LONG SHOULD CLAYS BE ALLOWED TO STAND?

With reference to the ageing of prepared terra cotta clay, it is only necessary to allow the clay to stand a day or two after preparation to give the best results. Longer ageing does not seem to help matters materially in general practice, and in fact, many concerns use their clay direct from the pug. But the writer does not find this to be the best practice, as there is too much confined air in the clay-mix, which works its way out as the mass settles, thus the whole becomes more compact, and consequently, seemingly tougher and more plastic.

The clays in the mix having been thoroly tested, the grog examined for size, and the clay-mix properly prepared and held for a day or two, the material is then ready to be delivered to the pressers. Pressing, finishing, drying and spraying will be discussed in the next article.

CONSTRUCTIVE CONVENTION *in* NORTHWEST

ABOUT THIRTY-FIVE MEN attended the ninth annual convention of the Northwestern Clay Association, held January 18th and 19th at the West Hotel, Minneapolis, Minn., and thruout the session showed a commendable spirit of co-operation and progress.

After the meeting was called to order and the minutes of the 1916 convention read and approved, B. F. Pay, president of the association, read his address, in which were incorporated suggestions of great value to the members regarding the furtherance of co-operation and the advisability of frequent group meetings of manufacturers in the same locality. A motion was made and carried that a committee be appointed by the president to consider these suggestions and hasten their application.

COMMITTEE ON INSURANCE RATES APPOINTED

After the reports of the secretary and treasurer were heard, the president appointed an auditing committee, nominating committee, and a committee on resolutions, which concluded the first morning's session. In the afternoon two more committees were appointed, one to act upon the suggestions contained in the president's address, and the other to investigate the possibility of reducing insurance rates on hollow-tile buildings.

Following this J. E. Dickey of Wilmington, Del., presented a paper dealing with the use of explosives in small clay banks, in which he advocated their use and gave an outline of the best methods to employ under various conditions. Following Mr. Dickey, J. F. Aten of New London, Ohio, spoke upon the soft-mud process of manufacturing brick. Emphasizing the fact that altho this method of brickmaking was one of the oldest known, dating back to ancient Babylonia, he showed that practically little improvement had been made up to a few years ago and pleaded for better and more efficient methods to be brought about by the assistance of manufacturers in developing new machinery.

HOLLOW-TILE PUBLICITY CAMPAIGN URGED

A very noteworthy talk was then given by S. J. Galvin, salesmanager for the American Brick and Tile Company of Mason City, Iowa, who spoke of the increasing demand for hollow-building tile from lumber dealers, which his company was enjoying as a result of the educational campaigns that have been carried on among the farmers. Mr. Galvin also recommended that the hollow-tile manufacturers of Minnesota undertake a campaign similar to that conducted in Iowa by the Permanent Buildings Society.

"Standard Drain-Tile Tests" was the next subject on the program, and was presented by John T. Stewart of the University of Nebraska. Mr. Stewart, a recognized authority on drainage, outlined the work which had been done by the Committee on Standard Tests and Specifications for Drain-tile of the American Society for Testing Materials, and illustrated his talk with photographs of drain-tile that had been broken under various conditions, such as constant pressure, sudden pressure like freezing, and scaling caused by alternate freezing and thawing. A very interesting discussion followed Mr. Stewart's paper.

In the evening the convention delegates sat down to an informal banquet, between the courses of which they were entertained with songs and music by two fair ones of the other sex. Following the dinner, J. S. Garns entertained the members with anecdotes and recitations.

QUESTION BOX A FEATURE OF CONVENTION

A very interesting discussion by W. D. Richardson of Hebron, N. D., on the subject of "Drying Clay Products" started off the second day's program. Following this, the question-box was opened and very interesting discussions of the questions "Can drain-tile be burned successfully in an up-draft kiln?" and "How can a red burning clay be burned in an up-draft kiln without fire-flashing?" resulted. An excellent talk by Professor F. F. Grout of the University of Minnesota, on "Minnesota's Clay Resources," was then heard. This paper, which pointed out several Minnesota clay deposits that appeared to be favorably located for development, was followed by several interesting questions from the members which occupied the rest of the morning session.

The afternoon's work was started with a report of the

(*Continued on Page* 371)

COUNTING *the* COST

A Simple Method for Keeping Costs is Outlined in This, the Fourth of a Series of Talks on the Above Subject

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company, Uniontown, Pa.

TWO IRISHMEN were once looking thru a magnificent cathedral; finally one turned to the other and in an awed voice whispered: "Don't this beat the devil?" His companion replied: "That's the intint!"

As pointed out in the previous section, all operating costs of any character whatever are dumped into one column and mixed up like the different kinds of clay when dumped into a dry-pan or pugmill. "That's the intint."

The ledger should not bear the burden of distributing operating charges. All these impersonal accounts, such as "Salaries," "Live Stock Supplies," "Selling Expense," "Interest," etc., are omitted from the ledger, *resulting in a clearer presentation of them later, and less work in the bargain.*

THE JEWELER'S FEAT

A man once took an old-fashioned clock to the jeweler to have it repaired. When he called for it he asked, "Are you sure you did not lose any of the parts?" "Lose any!" exclaimed the jeweler, "Why, I have several wheels left over!"

The writer explained this system to a brick manufacturer a few months ago, and when next seen the manufacturer stated that he had applied it to his accounting system, and had dropped twenty impersonal accounts from ledger.

But the object of omitting from the ledger any distribution of the operating accounts is to get them out into the open where the dissection can be carried to a much greater extent without becoming a burden, and where they will be more clearly seen. And here's where the "sense" column comes in. Suppose we wish to keep track of the following items in the cost of manufacture each month:

(a) Superintendence.
(b) Direct Labor
(c) Indirect labor.
(d) Raw material.
(f) Fuel.
(g) Supplies.
(t) Tools.
(i) Interest.
(l) Live stock supplies.
(m) Office salaries.
(n) Office supplies.
(s) Selling expense.
(r) Repairs.
(x) Miscellaneous expense.

Just place before the amount in the column of "Operating Costs" the symbol or letter identifying the charge, using for this purpose the first of the three divisions (see form 1). Then recapitulate by taking the total of each letter.

PUTTING THE SPOT LIGHT ON COSTS

Next get a book ruled as follows:

Form 2.

	Jan.	Feb.	Mar.	Apr.	May
a Superintendence					
b Direct Labor					
c Indirect Labor					
e Raw Material					
f Fuel					
Etc.					

Insert in the column the amounts found by recapitulating the "Operating" account for that month, the total of the column agreeing, of course, with the total in the operating register, journal, or whatever we choose to call it.

ADDITIONAL ADVANTAGES OF THIS PROCESS

Aside from its ultimate bearing on the important and vital subject of costs, this system has a further distinct advantage; the amount spent for repairs in the month of March is placed right beside the amounts spent in February and in January. Similarly, the amount spent for any other particular item can be traced month after month, year after year, by simply running one's finger along the line assigned to it, and any extraordinary fluctuation will stand out like a boulder on the prairie.

It will be well worth anyone's while to go this far in the application of this system. The information so far obtained every manufacturer should possess. Is there any shorter method of securing it? The operating charges for each month are thus set forth in shape for ready inspection and analysis.

Without taking inventories into account, simply dividing each item by the output during the month (making a safe deduction for spoilage or breakage) will give a rough approximation to the cost, but in general the approximation will not be close enough to be of very much service.

(To Be Continued.)

Who Can Furnish Michigan Slip Clay?

This magazine has occasion to use information concerning parties who can furnish Michigan slip clay, particularly someone near Rockland, Mich.

Will someone who can supply such clay, or who knows of someone who might be of interest in this connection, send word to this effect. In writing, please address the Editor.

SHALL *the* CLAY PIPE MANUFACTURER FIGHT FIRE *with* FIRE?

Or Would He Not Do Better to Continue and Enlarge Upon the Constructive Advertising of Vitrified Clay Pipe Which Has Already Been Done



Sample of the Clay Pipe Man's Constructive Advertising



No "Knocking" In This Ad.

THE DOMINANT NOTE of business, as it is being conducted in this month of February, 1917, is progress. This is a general statement, to be sure, as applied to barter and trade, manufacturing and merchandising, agriculture and the development of the country's natural resources, but the fact that progress is general in most branches of business is highly gratifying to all who have the welfare of this nation and mankind at heart.

On every hand there is evident a desire on the part of the manufacturer and merchant to get together, directly opposite to the tendency of only a few years ago when, like the existence of prehistoric man, it was every one for himself,

SELLING METHODS HAVE DISTINCTLY CHANGED

"Tell us your requirements and we will furnish you a material that exactly fits your needs," has taken the place of that slogan of the dark ages in industrial history, namely, "Let the buyer beware," in the transactions that pass between the man who has a product to sell and the man who is in the market. In like manner, manufacturers in kindred or dissimilar lines of endeavor are asking each other: "What can we do to fight rising costs?" or "What is a good standard for our product?"

Nothing like the steps that are being taken in this second decade of the twentieth century to put business on a thoroly sound and profit-producing basis, has even been seen or heard of before. Even the government has changed its attitude from that of a policeman to a kind father.

In the midst of all of these signs of industrial prog-

ress, so gratifying to the heart of the live business man, we are occasionally brought face to face with methods and practices followed by some merchants and manufacturers that savor of the days when mud-slinging sales arguments and cut-throat competition ran riot—when goods was sold by the pernicious process of elimination and then the price cut as an added incentive to the buyer. While these experiences sometimes discourage us, they are of value in that they point out the fact that the conduct of business is far from having reached as yet a Utopian era. They point out the need for more hammering on the necessity for observing the proper ethics of salesmanship and for further education along the lines of the proper conduct of business.

A VOICE FROM THE PAST

Not many weeks have passed since all of the journals circulating among the plumbing trade published the results of a contest conducted by the Cast Iron Soil Pipe Makers Advertising Association, which maintains headquarters in New York, for the best photographs showing house drainage piping "of interest" to the plumbing trade. The rules and detail information concerning this contest had been announced about August 1st of last year thru advertisements given out by the above-mentioned organization of manufacturers.

In the first of these advertisements it was stated that "the Cast Iron Soil Pipe Makers Advertising Association will pay the sum of one hundred dollars ($100.00) in cash prizes for photographs submitted in accordance with the following conditions:

"(1) The photographs submitted must show defective house drainage piping (either house sewers and house drains; or waste, vent and leader lines)—but no plumbing fixtures.

"Note: The two photo-engravings indicate the kind of photographs that will receive consideration. Any sized camera may be used, but photographs must be clear in detail."

At this point attention was called to two pictures which formed a part of the ad., one of which showed a "broken vitrified pipe (house drain) flooding cellar with sewage," and a "corroded wrought pipe (vent)." It is very significant that nothing was said as to the consideration that would be given pictures showing defective cast iron soil pipe.

ADVERTISING THAT IS FAR FROM CONSTRUCTIVE

This announcement or initial advertisement of the cast iron pipe makers association was followed by several others, called, for the most part, "short talks." Two of these last mentioned are reproduced in these columns. It will be noted that in one of them occasion is taken to "knock" a vitrified clay pipe drain without stating any of the facts in the case, other than the joints leak. In the other ad. the copy writer lays great emphasis upon what is called "a wholesale failure of wrought iron pipe in house drainage," at Pullman, Ill., which is also a bare statement with but few details to support it.

In striking contrast to this kind of advertising is shown that placed by the Sewer Pipe Manufacturers' Association of Akron, Ohio. The two ads. boosting clay pipe were taken from the same journal that published the cast iron pipe ads., but instead of using good space to "knock" a competitor and to sling mud, attention is called to the merits of clay pipe for house drains. One of these ads. shows evidence that, when properly installed, there is no available house drain material so satisfactory as vitrified clay pipe. Nothing is said about any other material and all of the space is devoted to telling *how good clay pipe is.*

WHY THE CAST IRON PIPE MEN GOT TOGETHER

It is the understanding of "Brick and Clay Record" that the Cast Iron Soil Pipe Makers' Advertising Association was organized for the sole purpose of conducting





Two of the Ads. which Formed a Part of the "Knocking" Campaign Projected by the Cast Iron Soil Pipe Makers' Advertising Association, the One on the Left Taking a "Rap" at Clay Pipe and That on the Right at Wrought Iron Soil Pipe

the contest to secure pictures showing defective wrought iron and clay pipe house drains and other installations. No other motive seems to have inspired the formation of this club of "knockers." It may be that something constructive may grow out of the Cast Iron Soil Pipe Makers' Advertising Association, but if it does, it is certain that a distinct change of policy will have to take place in the activities of this organization if success is to be attained, and all of the work in connection with the recent photograph contest will have to be wiped out.

A "knock" is usually a boost for the other fellow. Not only that—it hurts the reputation and character of the "knocker." In other words, it is a boomerang. There is a somewhat time-honored saying to the effect that when your competitor knocks you, put him on your payroll, which has lost nothing of its truth of application with the passing of the years.

CAST IRON PIPE HAS VULNERABLE POINT

It is not to be assumed from all that has been said concerning the campaign of "knocking" which has been conducted by the Cast Iron Soil Pipe Makers' Advertising Association that a cast iron pipe house drain is wholly without fault. The fact that this type of installation has a very vulnerable point open to attack, is either an oversight on the part of the cast iron pipe manufacturers or they refuse to admit that their product is not perfect when laid in the ground.

"Cast iron is an ideal material from which to make soil pipe," says a prominent master plumber in a recent letter, "but the joint or method of connecting the pipes is faulty and can never be changed until all soil pipe patterns and core boxes are altered.

"This joint on cast iron pipe is made by filling the hub partially full of hemp or oakum and pouring lead into the remaining part, then caulking it with hand tools. By this method it is possible to make a secure joint at the start, but there are several elements in nature that immediately tend to destroy the joint or connection and any system of cast iron pipe that is secure and tight when installed will soon develop defects.

"One weak point in the joint is the oakum or hemp, as it is evident that any fibrous material, such as rope, hemp or oakum, will deteriorate and rot. It is affected and destroyed by the action of acids and chemicals. I have seen caulked soil pipe joints in which the oakum had entirely disappeared.

"One other natural element of force to be considered is the expansion of metal caused by changes in temperature. This expansive force is constantly working. The temperature may change many times daily and every time it does, expansion takes place, straining some part of the pipe, and in a cast iron soil pipe, it usually affects the joint.

"The hub or enlarged end of cast iron soil pipe has a straight interior surface and even a slight pull of the pipe will work the packing out of the joint. This constant expansion and contraction process which is taking place at all times will work the lead entirely out of the hub of the pipe, leaving the connection without any sealing material.

"Cases where cast iron soil pipe is installed and the lead packing has worked out of the joints are familiar in the minds of most plumbers."

The above is certainly sufficient evidence to show that cast iron soil pipe house drains are not as perfect as the manufacturers would have the public and plumbers believe.

PERFECT JOINT YET TO BE ATTAINED

Nor are the cement joints employed in the laying of vitrified clay pipe house drains absolutely fool-proof. Careless work on the part of the contractor who is laying the drain will, in most cases, be productive of considerable trouble in after years. It is, however, certain that when good workmanship is employed there need never be any trouble with a vitrified clay pipe drain which has been properly laid.

One of the most hackneyed arguments used against burned clay sewer pipe installations is that the roots of trees and other vegetable growth, attracted by the moisture which is supposed to emanate from the joints of the pipe, gradually force their way thru these joints, clogging the pipe and rendering the drain unfit for use. Word has been received from a prominent engineer and ceramic chemist that this argument used by the opponents of clay pipe will soon be without ground, for a method is being devised to prevent any chance of trouble arising from this source.

The gist of this entire discussion of joints in house drains is that all three materials used for this purpose, purpose, namely, vitrified clay pipe, cast iron soil pipe, and wrought iron soil pipe, are on an equal footing. That is, no one of these three materials can be termed as possessing an absolutely perfect joint at the present writing. In view of this fact and the ability of clay pipe to resist the action of corrosion and chemical deterioration, it can be readily seen that of all materials used in house drains, clay pipe is superior.

THE MORAL OF THIS TALE

The lesson which the advertising campaign of the cast iron soil pipe manufacturers and their other promotion schemes hold for the clay products industry is that a larger appropriation is needed for advertising and publicity, calling attention to the merits of clay pipe. In deciding upon their means of offense, the cast iron soil pipe makers chose the most effective weapon they could possibly find—printer's ink.

The advertising that has been done by the Sewer Pipe Manufacturers' Association, which maintains headquarters at Akron, Ohio, while somewhat limited, has been very constructive. A step in the right direction has been taken by this organization of vitrified clay pipe manufacturers but the time is at hand, we believe, when more money spent for publicity of this sort will be a decidedly good investment.

Owing to the fact that the membership of the association does not extend beyond the state of Ohio, except for a few manufacturers in Western Pennsylvania, it is hardly to be expected that this organization should inaugurate a national advertising campaign, such as is being done by the National Terra Cotta Society, for instance, which has taken space in the "Saturday Evening Post." It is unfortunate that there is not some national organization of sewer-pipe manufacturers who could meet the destructive methods employed by the cast iron pipe manufacturers with a constructive advertising campaign that would put the cast iron men and their product to shame.

Some manufacturers are of the opinion that advertising is unnecessary in order to increase the sale of clay pipe and that a policy of continual personal boosting will win out in the end. However, for an important branch of a large industry to hide its light under a bushel (speaking from a national standpoint) is certain to result in stagnation. This is a day and age when a manufacturer must tell his prospective customers far and wide in no uncertain terms just what he has to sell and how good it is for the purpose intended. A manufacturer or group of manufacturers that does not make this a part of his or its business policy is building a pitifully frail bark in which to sail the tempestuous seas of competition.

COST ACCOUNTING *for the* CLAY PLANT

Showing the First of the Production Tables on Which to Gather the Proper Information Regarding the Operation and Output of Each Department

By A. J. Huac

WITH THE PUBLISHING of the installment appearing under the above heading in the January 30th issue of "Brick and Clay Record," the larger part of our uniform cost accounting system for clay plants has been completed.

The remaining tables are production tables, that is, tables to gather the proper information regarding the operation and output of each department. They will need little explaining.

PRODUCTION—DIGGING

Table No. 23 is based on the usage of a plant which keeps a storage of clay. Plants that use the clay as fast as it is dug, do not need to use lines No. 35, 36 and 37. Moreover, line No. 38 would be merged into line No. 34 .

PRODUCTION—POWER

This table is worked out on the department basis, as the cost of power is divided that way. All items are easily understood, except line No. 33. The horsepower of each department must include any line shafting used to drive the machinery of that department. The items on line No. 33, namely the horsepower of each department when added together, must equal the horsepower of the plant. Not many plants will use all of the columns we have shown, for the

TABLE NO. 23—PRODUCTION—DIGGING

Line No.	Date	Post From		Post To	January 1916	February 1916	Etc. for balance of 12 columns
1	1	Reports	Units Dug and Hauled				
2	2		Units Dug and Hauled				
3	3		Units Dug and Hauled				
4	4		Units Dug and Hauled				
5	5		Units Dug and Hauled				
6	6		Units Dug and Hauled				
7	7		Units Dug and Hauled				
8	8		Units Dug and Hauled				
9			Units Dug and Hauled				
			One line for each day in the month				
	27	Daily	Units Dug and Hauled				
28	28		Units Dug and Hauled				
29	29		Units Dug and Hauled				
30	30		Units Dug and Hauled				
31	31		Units Dug and Hauled				
32			Total Units Dug and Hauled				
33			Tons Per Unit				
34	(32 × 33)		TONS DUG AND HAULED	T1-9			
35			Tons Inventory First of Month				
36	(34+35)		Total				
37			Tons Inventory Last of Month	T3-6			
38	(36 — 37)		Balance equals tons used	T4-6			

Line No. 38 must equal T25-38

TABLE NO. 24—PRODUCTION—POWER

Line No.	Date	Post From	Column No.	JANUARY 1916 (Duplicate for other months)								
1	1											
2	2		Hours Each Dept. Using Power	Digging	Preparing	Making	Drying	Setting	Burning	Emptying	Loading	Stripping
3	3			I	II	III	IV	V	VI	VII	VIII	IX
4	4											
5	5											
6	6											
7	7	Report										
8												
			One line for each day in the month									
	27											
28	28											
29	29											
30	30											
31	31	From Daily										
32			Total Hours Each Department									
33	See below		Horsepower Each Department									
34	32 × 33		Total H. P. Hrs. Each Dept.									
35			Total H. P. Hrs. Entire Plant									
36	(34 ÷ 35)		Percentage of Power to Each Dept.									
			Post Line No. 36 to	T2-11	T2-13	T2-15	T2-17	T2-19	T2-21	T2-23	T2-25	T2-27

Line No. 33 to be supplied by management

reason that only a few departments use power in the average plant. When exhaust steam is used for drying, a proportion of the power cost must be charged thereto. A method of figuring the cost on the basis of the back pressure on the engine was shown in the explanation of table No. 5. Whichever departments use power will require a separate column each month. The table must be drawn up for twelve months' use.

Any use of boilers at night to dry the ware must be charged to drying.

PRODUCTION—PREPARING AND MAKING

Only a few plants have a storage of ground or prepared clay of any magnitude or consequence. For this reason we have taken the manufactured output, whether made by hand or machine, to be identical with the output of prepared clay. In the isolated cases where the tonnage of prepared clay would effect the costs we must keep an inventory of the prepared clay on hand at the end of the month. To this must be added the total on line No. 38. From this total must be subtracted the tonnage of prepared clay on hand at the first of the month. The balance will be the tonnage of preparing output.

We have based our system on five classes of output, that is, five products which are made of practically the same raw material, but which have different weights per thousand pieces. Various sizes or drain-tile, flower-pots, paving-brick and blocks, fire-brick and shapes, sewer-pipe, wall coping, hollow building tile, flue linings, conduits, etc., would require different classes. Few plants have a uniform product that can be listed as belonging to one class. A dry-press building brick plant making only one kind of brick will not need this classification. A fire-brick plant may make all the square brick and shapes by the same process. In that case a classification of this kind will be of little benefit. The cost of the shapes is really immaterial. Their selling price is based on the cost of the square brick. In that case all squares and shapes can be put into one class.

The large majority of plants will require more than one class, and that is why we have added this feature to our system.

This table also provides us with the information necessary to figure the "Differential" which is a basis for computing costs in the different departments.

Suppose Class "A" represents four-inch drain-tile, Class "B," six-inch, Class "C," eight-inch; Class "D," twelve-inch, and Class "E," fifteen-inch.

Then we would have some results like this:

	Class "A" 4-in.	Class "B" 6-in.	Class "C" 8-in.	Class "D" 12-in.	Class "E" 15-in.
Line No. 37.	.27	.28	.30	.31	.41
Line No. 40.		.32		.	.

N. B.—Line No. 40 does not equal an average of the figures on line No. 37 because the tonnage of the various classes manufactured was not equal.

Line No. 41....	84.4%	87.5%	93.75%	97%	128%
Line No. 42....	3½	6¼	10½	17½	25
Line No. 43....	2.95	5.47	9.84	16.98	32.00

This line No. 43 is the differential. It changes every month. To prove our figures and show how they are used:

Line No. 40....			.32		
Line No. 43....	2.95	5.47	9.84	16.98	32.00
40×43....	94.4c	1.75	3.15	5.43	10.24

If we multiply line No. 37 by line No. 42 it will give us the labor cost per thousand for each class which ought to equal line No. 40×43, as per figures above. The result of line No. 37×42 will be:

94.5c	$1.75	$3.15	$5.42½	$10.25

It can be seen from these figures how accurate is our system of using the differential. In figuring the costs of setting,

(*Table No. 25 on Next Page—Explanation of Tables Continued on Page 376.*)

TABLE NO. 25—PRODUCTION—PREPARING AND MAKING

Line No.	Date	Post From		JANUARY, 1916							FEBRUARY, 1916						
			Column No.		I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	etc.
1	1		Daily Output														
2	2			Post To	Tons	Class A	Class B	Class C	Class D	Class E	Tons	Class A	Class B	Class C	Class D	Class E	Continue for the remaining 12 months
3	3																
4	4																
5	5																
6	6	Reports															
7																	
			One line for each day in month														
	29																
30	30																
31	31	Daily															
32			Totals of Output														
33	T19 — 31A		Total Labor for Each Class														
34	(33 ÷ 32)		Labor Per 1000 Each Class														
35	Management		Tons Per 1000 Each Class														
36	(32 × 35)		Total Tons Each Class														
37	(33 ÷ 36)		Labor Per Ton Each Class														
38			Total Tons All Classes, PREPARING OUTPUT (Must equal T23-38)														
39	T19 — 31B		Total Labor All Classes														
40	(39 ÷ 38)		Average Labor Per Ton All Classes														
41	(37 ÷ 40)		Proportion Labor Each Class to Average Labor of All Classes Per Ton														
42			Tons Per 1000 Each Class														
43	(41 × 42)		Differential to Reduce Average Labor Per Ton to Labor Per 1000 for Each Class														

Post Line No. 43 to T16-9

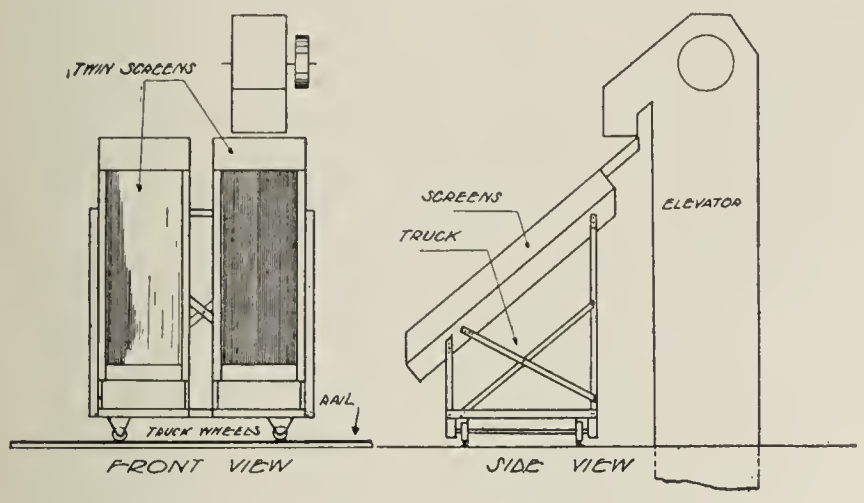
The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

Preventing Shut-downs With Twin Screens

A matter, alike interesting and puzzling to many superintendents of clay plants employing piano wire screens, is that the breaking of one wire, for some unknown reason, is usually followed in rapid succession by the snapping of many others.

The wires of this piece of equipment, which is usually perched in some high point in the plant where none but an



Little Time is Lost Because of Broken Piano Wires When These Twin Screens, Mounted on a Movable Truck, Are Used

expert contortionist can navigate, seem to enjoy company in quitting their jobs.

When the wires break, of course the advisable thing to do is to replace them immediately. However, the intervals between the snapping of several wires are often so small that it is exceedingly inconvenient to replace the wires as rapidly as they break.

It may happen that the only indication of broken wires will be in the irregularity of the clay received at the pugmill. In the case of a plant that manufactures high-grade face-brick or other products quickly affected by a change in the character of the clay received at the pugmill, it is often necessary to stop operations until the wire screen can be overhauled completely.

A device that will obviate any trouble of this character—that makes it possible to replace immediately a good for the disabled screen—is shown in the accompanying drawing. It is a set of "twin screens" mounted on a truck that operates on rails directly in front of the mouth of the elevator. When the wires of one screen have given way and trouble is being experienced from the clay received at the pugmill, it is but necessary to move the truck so that the reserve screen is placed in front of the elevator mouth and the worn screen taken out of use for repair. Then, when the wires of the other screen have worn out, the repaired screen is in readinss to take its place. This, as it is readily seen, absolutely precludes the necessity for closing the plant until the broken wires on the screen have been replaced, as well as those which are worn to such an extent that their breaking is merely a matter of minutes.

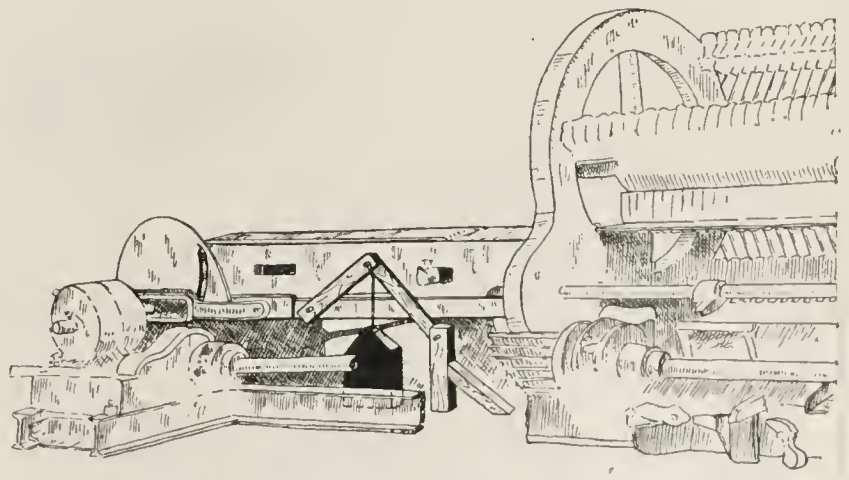
Cutting Straight Brick

Invariably, many years of service make an automatic brick cutting machine lose some of its old-time nicety of cut and perfect action. Those parts forced to bear the brunt of exceptionally heavy work will in time show the effects of same by action that is not quite so steady, or operation that is not so regular and accurate.

It is, however, not only length of service that brings on this condition, but when a machine is operated under exceptionally difficult conditions or made to perform a larger amount of work than it was originally designed for, the effects spoken of are hastened considerably, and show themselves in little time. Often operating conditions at the very outset of a machine's life are so hard that it is a difficult matter to obtain a clean, straight-cut brick.

An attachment that has been perfected to eliminate this trouble which arises in the brick cutting machine is shown in the accompanying illustration. Crooked brick may usually be traced to the bearing roller not fitting tightly against the cam, consequently causing a rough and jagged cut whenever the operation of the machine becomes in the least jerky. Not only do irregularly shaped brick result, but the wires are subjected to abnormal strains and an unusually large number are broken in a day's operation.

The plant upon which the device, illustrated in the accompanying drawing, is in use, claims for it great possibilities. It consists of a weight, the size of which is governed by local conditions, suspended from two arms, one of which is fastened to the extension arm



Attaching a Weight to the Rotating Brick Cutter Forces the Bearing Roller Tight Against the Cam and Eliminates Jerky Action and Poorly Cut Brick

on the automatic cutter, while the other is bolted to an upright, which is fastened to the floor alongside the carriage. All the bolts used in connecting the arms are drawn just tight enough to insure their free movement.

It can readily be seen that the pull of the weight would force the roller tightly up against the cam and produce a very steady forward motion when the cutter is being shifted, therefore, insuring a perfectly cut brick. Another advantage to be gained by the use of this device is that it acts as a counterbalance, helping the machine as it returns for the next cut.

You Should Know of the Many Advantages of

THE POTTS SPECIAL

A Soft Mud Brick Machine

Self Striking—Horizontal—for Common and Fire Brick

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"The Chain of Double Life"

Reduces operating costs because it outwears several ordinary chains and gives TROUBLE-PROOF SERVICE wherever used. Sprockets, Buckets, Elevators, etc.—Send for Catalog

THE UNION CHAIN & MFG. CO., SEVILLE, OHIO

DRAG LINE CABLEWAY EXCAVATOR

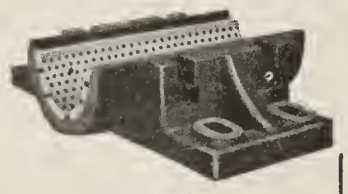
SAUERMAN

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Sauerman Bros.

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This Is the Way Your Bearings Look

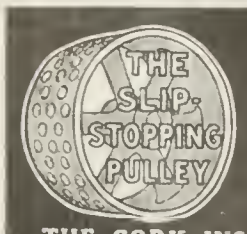


To secure it you simply place a graphite sheet between the mandrel and the bearing box and pour in the babbitt. The result is a babbitt bearing impregnated with graphite spots. These bearings last from two to ten times as long on severe work.

Randall Graphite Sheet Lubricator Co., 816 W. Lake St., Chicago, Ill.

TO STOP advertising to save money is like stopping a clock to save time.

—*The Little News.*



CORK INSERT PULLEYS

BRAKE LININGS, CLUTCH FACINGS AND TENSIONS overcome the worst conditions and produce operating economy.

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"Operating Details of Gas Producers"

The latest publication giving the status of the gas producer in the United States, in connection with its use for producing power or heat, has just been issued by the Bureau of Mines, Department of the Interior, as Bulletin 109, "Operating Details of Gas Producers," by R. H. Fernald.

Mr. Fernald discusses the producer-gas-plant situation as it exists in the country today and also compares the producer-gas plant with the steam turbine. In this connection, Mr. Fernald says:

"The steam turbine naturally lent itself to central-station service. It was a unit easily understood by steam-engine operators insofar as practical operation is concerned; it could be readily erected without radical changes in the boiler-room equipment, and it rapidly met the demand for large central-station units.

"The producer-gas plant was an untried factor; it met with strong opposition from the older steam-plant operators, who saw possibilities of being forced out of their positions; its installation meant a complete renovation of the entire plant, with the replacing of the steam boiler by the producer unit. Large units of this type did not materialize, with the natural result that even today the producer-gas power plant is not the large central-station unit, altho it occupies a strong position among the isolated plants and the small central stations.

"Methods of operation vary greatly with local conditions and especially with the personal inclination or opinion of the plant superintendent. This variation is, perhaps, perfectly natural, owing to the newness of producer-gas power, the absence of experienced producer-gas engineers, the absence of co-operation among the operators of these independent isolated plants, and the absence of well-defined commercial investigations.

"With this lack of a common interest on the part of the owners or operators of these plants—an interest that has of late tended to place central-station operation on somewhat uniform basis—no standards for comparison of plant operations have appeared and little has been known by the superintendent of one plant regarding the relative efficiency of operation of his own installation and that of another plant of smaller type operating under similar conditions.

"Several unsuccessful attempts have been made by various organizations to collect data relating to these important matters, but unfortunately little or no information could be had.

"Appreciating the value of such data in connection with the many problems of fuel conservation and its investigations into the use of producer-gas power, the Bureau of Mines decided (1) that an effort should be made to procure operating details from a small number of representative producer-gas plants using scrubbed gas either for power or heating purposes; (2) that primarily data from plants using bituminous coals and lignites should be sought, but that data from a few of the larger anthracite plants and the oil and wood plants should be included.

"With these points in mind, data sheets were sent to the owners of a limited number of plants, and for the most part the response has been highly gratifying. Returns of a positive character were received from thirty-nine installations.

"Altho, as might be expected, a great deal of indefiniteness exists regarding many of the operating details, and few, if any, cost data are available, it is believed that in this bulletin sufficient detailed information is presented to provoke wholesome discussion on the part of those interested in this form of power; to stimulate responses to future requests from the Bureau of Mines, and to serve as a basis for comparison by the different operators of similar plants."



The LETTER BOX

A Place Wherein Letters That Have General Interest Are Published and Commented Upon

Cleaning Kiln Flues by Vacuum System

A little more than three months ago there appeared in an issue of "Brick and Clay Record"—the November 7th issue, to be exact—an article entitled "From Togo to Togo," which suggested in a humorous way the use of a vacuum system for removing sand and broken bits of burned clay from kiln flues. An editorial also appeared in the November 7th issue which called attention to the need of investigation and experiment to develop this idea and pointing out an opportunity for someone to do something really worth while for the clay products manufacturing industry.

Since the appearance of the above mentioned article and editorial, a Pennsylvania reader wrote us asking if it were possible to do with a vacuum cleaner what was suggested in the article. The answer to this reader appeared on page 1103 of the December 19th issue, which was to the effect that the idea was in the embryo stage and that a number of important obstacles were still in the way of speedy success in perfecting a machine that would remove sand and other foreign materials from kiln flues without the necessity of ordering the workmen on the plant down in the hole to perform this tedious and disagreeable task.

Since this last-mentioned communication we heard nothing from our readers regarding this matter until February 2nd, under which date we received a letter from E. F. Plumb, vice-president of the Streator (Ill.) Brick Company, which reads as follows:

Referring to the question of vacuum cleaner for removing the sand from the bottom of the kilns. While this was suggested by a humorous article in your publication, we believe that there is a great deal of merit in the idea.

You state that the objection to this device is the wearing of the hose due to the friction of the sand. We know that a sand blast hose is manufactured for the purpose of sand blasting and we do not see why this would not operate equally satisfactorily on this kind of mechanism. If such a device could be developed we know that we for one would hail it with delight and believe the manufacturers may have given up this proposition too easily.

Surely, we do not want to quit before even getting warmed up to the struggle with this problem. The device in question may not be of first importance in the operation of a clay plant, but it is one of those helps to greater efficiency and contentment among the workmen that count for bigger profits in the aggregate. The working out of a successful machine for the cleaning of kiln flues is something that demands the time and thought of every clay products manufacturer and executive who can possibly spare it. Mr. Plumb, from whom the above letter was received, is probably one of many who would hail with delight the perfection of a vacuum cleaner for kiln flues. Let us, therefore, all get down to business in this matter and put it across.

* * *

The McGill Clay Works of Payne, Ohio, was recently purchased by Nathan Gudeman.

The Belt Man Says:

"I'd rather have an ordinary belt joined with Crescents than the best belt made without them."

CRESCENT BELT FASTENERS



Crescent Plates and Crescent Rivets are made in various sizes to meet all conditions of work.
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Specializing in BONDS ON CLAY PROPERTIES

Investigate Our Line

Dies for Clay Working, our Specialty. Brick, Fireproofing, Plain and Ornamental Hollow Ware Dies, for Auger or Steam Press; Piano Wire Clay and Sand Screens, Conveyors, Elevators, Dry Pan and Pug Mill Automatic Clay Feeders, Friction Winding Drums.

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costs you, because as soon as you install this system you will get a reduction in your fire insurance rate.



You can't possibly know how much you need this system until you begin to investigate. We will prove our claims.

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TRACK EQUIPMENT
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Especially Adapted for
Brick and Clay Plants

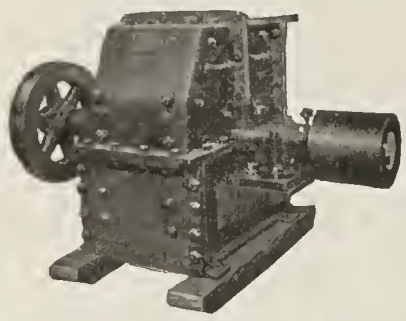
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Incline Lay-outs, two or three-track.
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The Cincinnati Frog & Switch Co.
CINCINNATI, OHIO

The All-Steel
K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.



Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

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Are You Coming to New York?

If you are going to attend the N. B. M. A. Convention in New York, March 5 to 10, I would like to have you advise me so I can arrange to meet you and tell you about the

Chmelewsky Patent Kiln

I will show you plans and specifications and you will see how simple, yet efficient, this kiln is. Write me and I'll call to see you at your hotel.

Dr. H. Robergh, 30 W. 127th St.,
New York City

QUESTIONS

A Two Cent Stamp May Bring You Advice That Will Stop a Waste, Improve Your Ware or Lower Your Production Cost

Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

Asks if Soft Shale Will Take Light Salt Glaze

810. *Iowa—We are planning to make glazed silo tile, and therefore, desire to secure some information from you on this subject. Our clay is of a soft shale nature, burns to a bright red and vitrifies between* 1,700 *and* 1,900 *degrees Fahrenheit. Would it be possible in any way to give this ware a light salt glaze? Any information which you may give us on this subject will be gratefully received.*

According to the usual "dope" handed out by ceramists in general, no clay will take a salt glaze below a temperature of approximately 2,100 degrees Fahrenheit, therefore, it would not be possible to salt glaze a bright red clay between 1,700 and 1,900 degrees.

There are exceptions to this general statement, however. Some clays found on the Pacific Coast will take a salt glaze at the temperatures you mention.

The only way for a man to find out whether a clay will take a salt glaze under his conditions or not, is to actually try to glaze it in a kiln.

* * *

Neighbors Complain of Smoke and Gas from Plant

809. *Ohio—I have gotten into trouble and would like to have your advice as to a way of getting out on top. I am operating a drain-tile plant in what was at one time an incorporated village. Now, a neighbor on the east side of the plant has brought suit for damages and is trying to have the kiln declared a nuisance and to have said nuisance abated. All of the plaintiff's buildings have been erected since the plant was established. Wood was used as fuel up until two years ago, when a change was made to coal, which makes a disagreeable smoke for a few minutes after firing. But after the smoke has cleared away there is a strong gassy smell that seems to be as much of an objection as the smoke. The kiln which we are using is a Stewart. Now, what I would like to know is how to overcome these objections and avoid a long drawn out legal battle.*

Our recollection of cases where a clay plant has been made the subject of protest by neighbors brings out the fact that no one can object to the smoke from the kilns and be sustained by the courts in ordinary cases, especially where the plant has been established, as has yours, before the surrounding property was occupied by residences or other structures. However, no one is obliged to put up with gases coming from the kiln yard.

A very interesting case developed a few years ago here in Chicago, wherein the Bach Brick Company was put to considerable expense in settling with a complainant who objected to the sulphur fumes which came from the scove



and ANSWERS

Best Authorities in Every Clay-working Branch are Called into Consultation — Their Advice is Free to You, Thru These Columns

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

kilns of the company. There was not so very much smoke produced by the burning of brick made by the Bach Brick Company, so this was not the objection. As we remember it, the company was compelled to do all in its power to get rid of the gas nuisance, or face an expensive law-suit. After spending a large sum of money and using the best talent procurable, the company finally overcame this objection. We simply mention these facts, thinking that they may be of interest to you.

Of course, you will want to overcome the objection to the smoke from your kilns if you possibly can, and in this connection, we would advise your building an addition of about fifteen feet to your stacks which should discharge the smoke high above your neighbors' heads. Under ordinary weather conditions, we believe this would solve the smoke problem, as only at much separated intervals would atmospheric conditions be such as to force the smoke downward.

Concerning the disposal of gas fumes, we presume that you are using a slanting grate, which, when filled up to the top with coal, makes a miniature gas producer. The only disadvantage about this "gas producer" is that most of the gas is not utilized but goes up the chimney. To overcome this difficulty, we would suggest the installation of a shaking grate. A fire-box with this type of grate would give you one very similar to that used under boilers. This sort of a fire-box is, of course, very easy to control and gives much more perfect combustion than the old type of slanting grate. We believe that with the addition on the stack and more scientific construction of fire-boxes, you should be able to overcome all objections on the part of your neighbors.

* * *

What Is Proper Size for Repress Die?

808. *Iowa—We are thinking of putting on a repress machine. We make a side-cut brick measuring* 9¾x4$\frac{1}{16}$x2½ *in. What size die should we have for our repress?*

The above question, together with an answer, appeared in the January 16th issue of "Brick and Clay Record." Since that date we are in receipt of a letter from Roy G. Smith of Kansas City, Mo., who volunteers some information in answer to this question, as follows:

"As a rule the best practice with reference to the size of the column and size of repress mold box is to have the mold box $\frac{3}{16}$ in. longer and $\frac{3}{16}$ in. wider than the brick which is to be put into it. If you are making paving-brick, the nearer the same size you have the brick and the mold box, the better, but $\frac{3}{16}$ in. clearance represents a good average working condition and everything less than this may give trouble.

"If, on the other hand, you are repressing brick for building purposes, it is not so important what the relation of the brick is to the mold box, I have seen them as much as ½ in.

Manganese Dioxide

All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

Crimora Manganese Corporation
15 Broad Street NEW YORK

Blasting without using the CYCLONE DRILL

is like hunting deer with birdshot. You can't possibly get good results.
We are ready to offer you facts and figures to prove that the Cyclone Drill will soon pay for itself.

Ask for names of users and Bulletin No. 4

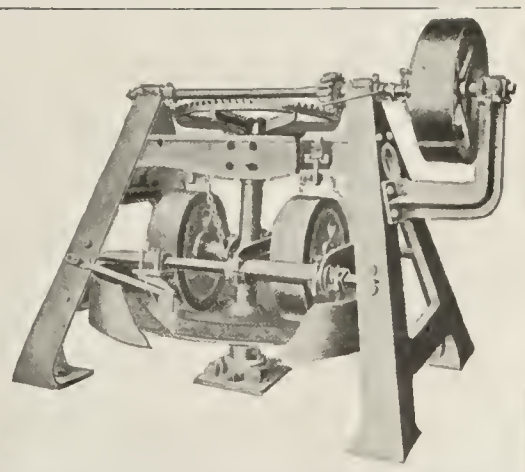
The Sanderson-Cyclone Drill Co.
ORRVILLE, OHIO

You Can't Think of CARS
unless you think
YOUNGSTOWN!

A good car, a good performance is never forgotten it can't be. Youngstown cars stand up under the strain of derailment, dipper-hammering, dumping, for years and years.

The Youngstown Steel Car Co.
Youngstown, Ohio
ASK FOR INFORMATION TODAY

THE EAGLE DRY PAN



Write for Prices

EAGLE IRON WORKS DES MOINES, IOWA

SAY "I SAW IT IN" BRICK AND CLAY RECORD



SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

Produces absolutely uniform heat and reduces fuel consumption. Keeps the heat where it is productive. The reduction in rejected pieces will pay for the insulation in the first month of operation.

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NEW YORK 11 Broadway · CHICAGO Monadnock Bldg · LOS ANGELES Van Nuys Bldg · SAN FRANCISCO Monadnock Bldg · TORONTO 61 Sumach St.

Write nearest Office for Samples and Information.

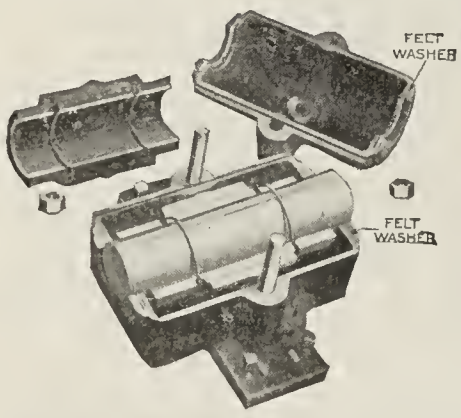
"WHEN your belts are slipping your profits are sliding."

Prevent that "slip" by using "SERO" Belt Dressing on your belts. "SERO" Belt Dressing is not only guaranteed to **prevent belts from slipping,** but also to **prolong their life.** It is the ideal Dressing for clay working plants, as it **does not gather dust** like a great many Belt Dressings on the market today.

Sold subject to buyer's approval, to be returned at our expense if not satisfactory. Why not order a trial can today and see for yourself just what it will do for your belts?

SERO SPECIALTY CO. Cleveland, Ohio

Save Power Cost by Using



CLARAGE
KALAMAZOO
Multiblade Fans

Friction reduced to a minimum because of Clarage Special Bearings. They are enclosed—run in oil—dust-proof and self-aligning. That's why the best brick plants use them. Ask for detail information.

Clarage Fan Company
Kalamazoo, Michigan, U. S. A.

Just Published
STEAM POWER
By C. F. Hirshfeld, M. M. E., and T. C. Ulbricht, M. E., M. M. E.

This book contains the essential theory of the subject, and is written in an understandable manner.

428 pages, 5¼x8, 232 figures.
Cloth, $2.00 net.

BRICK AND CLAY RECORD, Chicago

smaller. This will, of course, make the brick that much thinner after it is pressed.

"If you propose making only repress brick, then the proper thing to do is to decide what size you want the finished product and then figure back from this and have a brick machine die made to give you a column of the proper size. Do not overlook the fact that in most clays the column will swell slightly after it leaves the die; an allowance of 1/16 in. is usually sufficient to take care of this."

* * *

The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

IN SPITE of unfavorable influences that are threatening the building boom scheduled for the spring and summer months of 1917, all indications point to a full and complete realization of the brick manufacturer's hopes for unprecedented activity in his industry. Architects thruout the country report that they are preparing specifications for a large amount of work that will undoubtedly develop when the weather permits.

There is little doubt, however, but that the high price of building materials will leave its mark upon the records to be attained during the building season. Not a little work is taken off the immediate eligible list because of the prevailing price of materials but, according to reports that emanate from seemingly authoritative sources, there is no assurance that the high water mark has been reached and that, unless the operations are started early, prices even in excess of those now obtaining will prevail.

The other retarding influence is the congested freight situation. How strongly this factor will make itself felt in the building industry is uncertain, but it is not unlikely that it will have its effect upon 1917 building. Prospects are not going to commence operations of any moment unless they are perfectly sure that the delivery of materials will be unhampered.

Naturally, at the present time building is very low. Associated with the cold weather that is responsible for this condition, is the recent severance of diplomatic relations with Germany. The effect of this action has made itself felt in the building industry throuout the country, but this is believed to be only a temporary influence.

CALIFORNIA LOOKS FOR BIGGEST YEAR

There is no doubt that the potential construction work for California cities, as well as for the cities of the Northwest, is greater by far for the coming season than was the case last year. Clay products manufacturers predict a year of excellent activity and claim that even if only the work



which is being figured on at the present time materializes there will be sufficient business to keep all of the plants active. Quality arguments, even to the sale of common-brick, are supplanting price considerations in buying on the Pacific coast. In fire-brick this is becoming especially true, while in the distribution of face-brick and terra cotta it is playing equally as important a part.

Much the same condition of prospective prosperity prevails in the cities that separate the far western from the central states. While the future is bright for Chicago brick manufacturers and dealers, the present holds little that is thrilling. January records, when compared to those of a year ago, make a poor showing. During January, 1916, at this point, the value of permits issued for new construction amounted to $8,118,200, while the number of permits issued amounted to 538, but in January, 1917, a loss of $3,310,507 and 230 permits was suffered from the previous year's record.

The coldest weather in twenty years effectively tied the hands of Louisville, Ky., builders during January and the early part of February. In fact, the spell was so severe that several plants were compelled to abandon operations until it abated, altho they were operating on important orders. However, this slight respite provided them with an opportunity to pile up a comfortable fuel supply. Manufacturers in this district are casting about for attractive coal contracts but are, in the main, disposed to wait until conditions recede to normal. The second week of February saw a lapse of business that was attributed to the strained foreign relations of this country but an early pick-up in conditions is expected.

OHIO FACES BRICK FAMINE

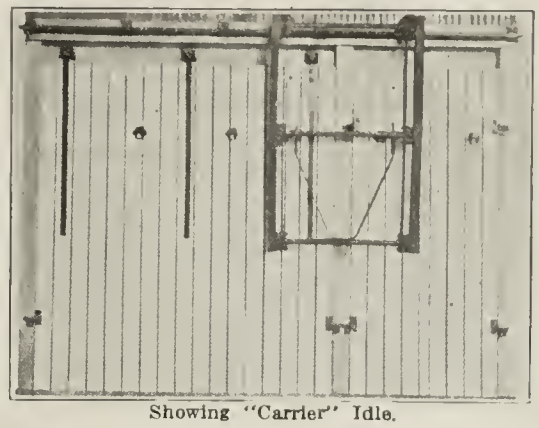
That Ohio faces a famine in face and common-brick was the verdict reached at a recent meeting of representative brick manufacturers of that state. Labor conditions and car and coal shortage were pointed to as being responsible for the fact that brick plants are now operating at less than half of their capacity, in spite of the fact that there is a stock on hand that would fill only sixty per cent. of the orders on file. In direct contrast to this condition is that which usually prevails at this time of the year, when plants seldom are caught with unfilled orders and usually have a large supply of brick on hand ready for spring consumption.

While building operations at Cleveland have lagged during the past few weeks, due to a cold spell, activity in Pittsburgh is fairly satisfactory but is not being maintained as well as might be expected. Eighty-two new buildings were authorized by the building inspector at that city during January, the estimated cost of which amounted to $735,123—almost double that of January, 1916. The number of permits issued, however, was thirteen less than that of last year, showing the part that is being played by the high cost of materials.

TEN DOLLAR BRICK FOR NEW YORK IN SIGHT

Brick dealers in New York City are discussing the possibilities of $10 brick in February, and to judge from the prevailing conditions at that point, there is every indication that this mark is entirely possible. With the Hudson river above Yonkers practically blocked with ice and the shipment of brick an impossibility until spring, the total number of brick available in the New York market, including four barges that struggled thru the ice from Haverstraw recently, is but 7,200,00. In some quarters, even this condition is not looked upon to bring about ten-dollar brick. The price obtaining at the present time ranges from $9 to $9.50 for Hudson

Keep the Heat in Your Drier



Showing "Carrier" Idle.

Why waste fuel just because your drier doors don't fit tight? They can be made tight in the first place, and kept tight, if you equip your drier with the

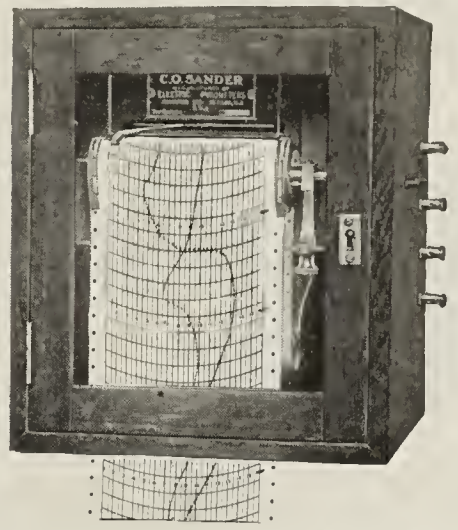
Perfected Dry Kiln Door Carrier

Will handle doors from 2′ to 8′ wide and 5′ to 8′ high. Made for wood or fireproof construction.

Write for catalog B2 and all details.

Sold on 60-day trial.

Dry Kiln Door Carrier Co.
Indianapolis, Ind.



An Accurate Record

of the kiln's temperature—that is what you must have in order to secure an even burn. SANDER PYROMETERS guarantee accuracy.

The Sander Instrument Co.
136 19th Ave. Irvington, N. J.

WE CAN SAVE you 25% of your fuel bill. No money until we do it. Don't you think this worth a stamp? Then write to the

X. L. KILN & DRYER COMPANY
Box 269 Ottawa, Illinois



B. & B. Two-Bucket Aerial Tramway

requires but one man for its operation, reduces cost of hauling clay and shale to a few cents per ton.

Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

Broderick & Bascom Rope Company
St. Louis, Mo.



Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

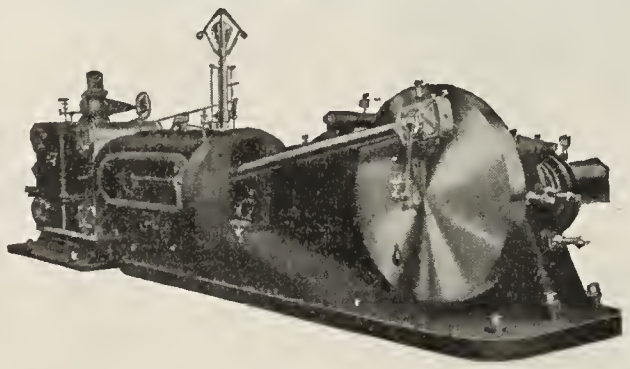


STUPAKOFF PYROMETERS

for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

The Stupakoff Laboratories
Pittsburgh, Pa.

POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



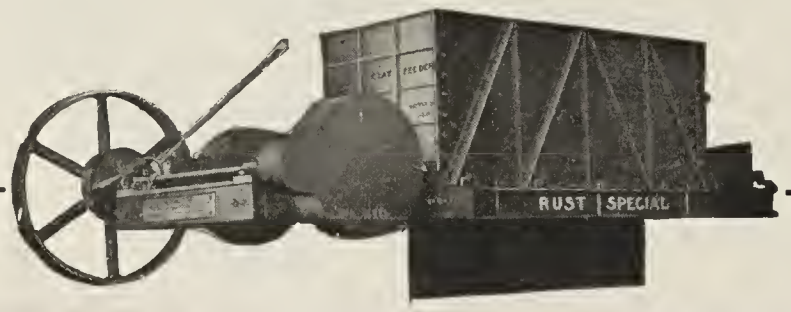
Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 **BURLINGTON, IOWA**

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana



"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusive.y Manufacturers of First Quality Light Steel Rails and Accessories

BUCKEYE — Offices: Steubenville, Ohio — BEST — BEST — Mills: Newark, Ohio — BUCKEYE

MEANS — MEANS

All Sections from 12 lb. to 40 lb. per yard

Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

commons, while Raritan commons are not now obtainable. Second-hand commons are bringing $4 for a load of 1,500.

Face-brick manufacturers supplying the New York market, as well as the dealers, look forward to the coming spring with great expectations, since the outlook for this material at the present time is exceedingly optimistic. Prices of face-brick have advanced somewhat, due to the increased cost of manufacture, but the advances have been too small to appreciably affect the final cost of a large building operation.

AGGREGATE FIGURES FOR LAST EIGHT YEARS

Comparative statistics for building and engineering operations in New York, New England, New Jersey, Pennsylvania, Maryland, Delaware, District of Columbia, Virginia, Ohio, West Virginia, Illinois, Indiana, Iowa, Wisconsin, Michigan, Minnesota, North and South Dakota and portions of Missouri and Kansas, collected by the F. W. Dodge Company, indicate that contracts awarded during the month of January for the last eight years are as follows:

1917	$90,849,000
1916	62,784,500
1915	43,257,000
1914	51,102,000
1913	62,810,500
1912	38,910,000
1911	66,892,000
1910	39,005,395

PREPARE FOR PROSPERITY

All in all, conditions may be said to be favorable thruout the nation. While the present is holding little for the manufacturer and dealer of burned clay building materials, the future seems to hold much, so utilize these months of comparative quiet in preparing for the future. The year of 1916 has left fond memories of great activity, but if anything can be judged from current reports and indications, 1917 will hang up a record for prosperity that will be far in advance of that which has passed.

Valuable Clay Deposits Discovered Recently

Grand Traverse Bay (Mich.) region is coming to the front in the discovery of valuable clay deposits. Only a few weeks ago John A. Wade of Traverse City made public the discovery of valuable mineral deposits on his land situated in the corporation of Traverse City. Mr. Wade has had pottery experts testing and experimenting with this material for more than a year and the deposit is said to be one of the most mysterious and marvelous yet uncovered.

Industrially, the discovery promises much for the region in which it is located as seven different lines of ware have been produced in the tests from the raw material. Among the most important of these are the following:

Fine art ware similar to the highest quality china, superior door knobs, glazed brick, glazed stoneware and novelty goods thought to be unequaled.

Still more recently, John Boursa of Peninsula township has made another valuable discovery. He brought a sample of clay from his farm on the peninsula to Traverse City to be analyzed. The sample has proved to be white clay, and as tested in the school laboratory at the above mentioned point, was determined as being practically free from lime and iron and rich in alumina. If, after more rigid tests are made, the material is found to contain a sufficiently small percentage of sodium and potassium, the clay will be ideal for brickmaking and immediate steps will be taken to develop that industry there.

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

F. R. Van Stralen, a well-known tile and brick manufacturer of North Plains, Ore., died during the past month.

M. S. McNaughton, sixty-two years old, who has been superintendent of the Federal penitentiary brick plant at Leavenworth, Kan., for the last eight years, died Sunday, January 11th, at his home in that city.

Mr. Lewis Wesch is named as the prospective bridegroom in an announcement by Mr. and Mrs. J. E. Marret of Louisville, of the engagement of their daughter, Miss Alice Helen Marret. The wedding will take place in April. Mr. Wesch is salesman for the Tyler Building Supply Company.

Daniel Snyder, age ninety-one, reputed to have operated the first building brick factory in Madison county, Ind., and who provided the material for the first brick house built in Anderson, died last week at his home in Pendleton, where he has lived for the past few years. Snyder was married twice and is survived by his widow, one son and one daughter.

J. James Gardner, secretary and salesmanager for the Andrew Ramsey Company, manufacturers of fire and enamel brick at Mt. Savage, Md., died at the home of his sisters at Cumberland, Md., on January 25th, following a lingering illness. Mr. Gardner organized the Gardner Brothers Brick Company at Ellerslie, which was later taken over by the Ramsey company.

Among the accredited delegates from brick and allied associations to the fifth annual meeting of the Chamber of Commerce of the United States, held in Washington, D. C., early in the present month were: Refractories Manufacturers' Association, R. D. Hatton and Charles H. Claiborne; American Face Brick Association, S. C. Martin, George A. Bass and R. D. T. Hollowell.

Resigning their positions as secretary-treasurer and salesmanager, respectively, with the Far West Clay Company of Tacoma, Wash., Albert Armstrong and H. R. Kreitzer have opened offices in the White building, Seattle, Wash., where they will be the northwestern representatives of the Denison Interlocking Tile Company of Cleveland, Ohio. Mr. Armstrong was one of the organizers of the Far West Clay Company, which began operations in 1909, while Mr. Kreitzer has held the position of salesmanager for the past five years.

Emmett C. Howard, recently made manager of the Claycraft Brick Company, Columbus, Ohio, has returned from a six-weeks' inspection trip in the South. He visited Cincinnati, Louisville, Nashville, Birmingham, Montgomery, Selma, Pensacola, Mobile, Jacksonville, Atlanta, New Orleans and other southern points. He reports some parts of the South are in excellent shape insofar as brick prospects are concerned. In some sections the boll weevil has caused much damage in the cotton crop and conditions are bad. Likewise some sections are diversifying their crops and have taken all their available surplus of

Avoid Annoying, Costly Leaks

in the boiler room, or on any flanged pipe line or connection in the plant carrying steam, hot or cold water, etc., by the use of

JENARCO Sheet Packing



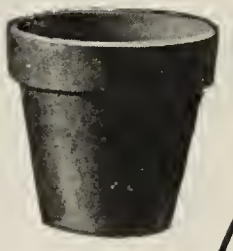
A gasket of Jenarco placed between any flanged joint will make that joint absolutely and permanently tight. No escaping of steam, no damaging or costly leaks, no annoying dripping of water. Obtain through your regular dealer, either in gaskets cut to exact size and shape required, or in sheets 36 in. wide, any length required, all standard thicknesses.

TRADE JENKINS MARK Jenkins Bros

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
133 N. 7th Street, Philadelphia. 300 W Lake Street, Chicago.
Jenkins Bros, Limited, Montreal, Canada, and London E. C. England.

TRADE JENKINS MARK Jenkins Bros

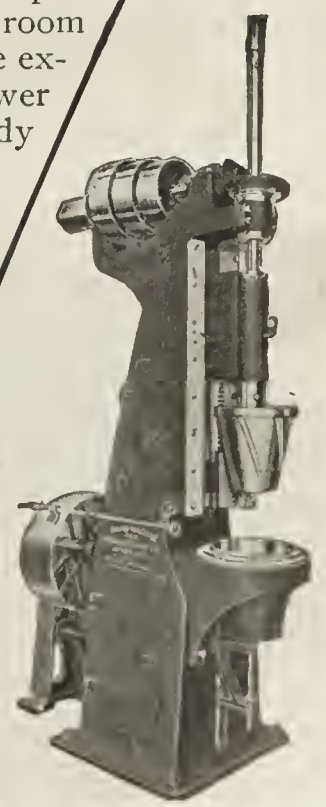


A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.



Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.



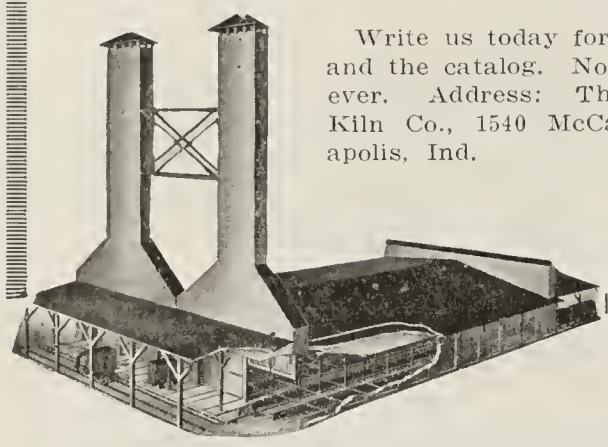
Going to New York?

Maybe with a drying problem heavy on your mind? Listen—why not do **this?** Have us send you a list of the brick men who dry their product by The Standard Natural Draft Steam System. A host of them will attend the big annual "round up." Plenty whose drying problems were as troublesome as your own **before** they installed

The Standard Drier

Ask these brick men about the kind of drying results they are obtaining. They'll be glad to tell you—just as you'd be glad to tell them of a good thing.

They will tell you how absolute control of the drying elements makes The Standard Drier a success on any and every variety of clay—how the operating cost is very, very low—the upkeep practically nothing at all.



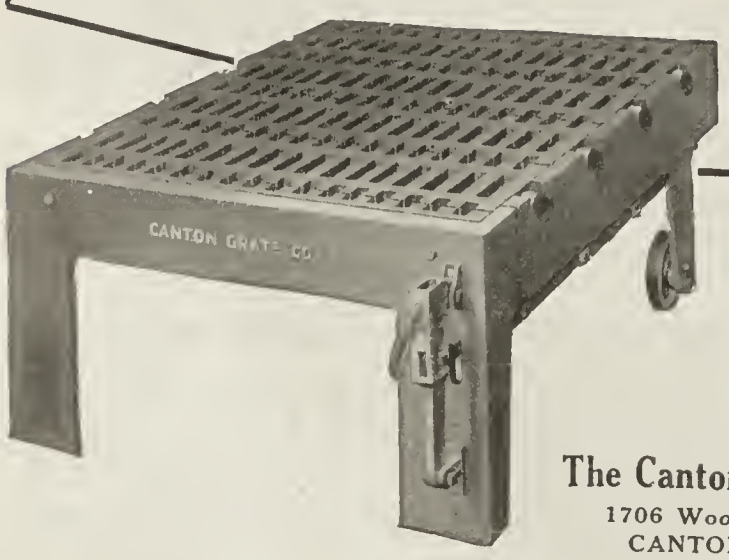
Write us today for the list of users and the catalog. No obligation whatever. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Kiln Furnace Grates

With these grates it is possible to burn less fuel and to use a cheaper grade—attaining an even, uniform flow of heat.

The total of the two savings has reached over 40 per cent of the former fuel bill on one fire brick plant.

Try them on just one kiln; they will fit your furnaces. Note that the wheels in back permit easy moving from kiln to kiln.



Send for Description

The Canton Grate Co.
1706 Woodland Ave.
CANTON, OHIO

cash to buy seeds and equipment and therefore are not in the market for brick. Atlanta, Louisville, New Orleans, Jacksonville and Pensacola are all good markets.

John Walter of Chatsworth, Ill., died at his home in that city on January 20th, 1917, at the age of ninety-three years. The expiration of this sturdy old pioneer creates another gap in the ranks of those who blazed the trail for the establishment of the clay products industry in the Middle West. Mr. Walter's unusually long life contains many passages of interest. He was born in Germany, and after completing his apprenticeship as a shoemaker, he journeyed thru many different cities and villages of southern Germany and Switzerland. In December, 1850, he departed from the Fatherland for America on a ship that completed the perilous voyage in fifty-six days. Mr. Walter has been a resident of Chatsworth for more than fifty years. In 1894 he sold to his son George his interest in the brick and tile factory.

Alabama

The slogan "Build with Brick" has found a very prominent position in the "Made in Montgomery" show due to the activities of the Excelsior Brick Company at Montgomery, Ala. This company, which manufactures many different styles of building brick, has made a very complete display of its products at the show. The display very effectively emphasizes the desirability of permanent construction.

An unusually attractive exhibit was installed at the "Made in Montgomery" show by the Jenkins Brick Company of North Montgomery, Ala., recently. One of the features of the display was a hollow-tile wall, the advantages of which were pointed out by a sign hanging upon it. An artistic mantel constructed of rough-textured face-brick composed another section of the display. In addition to these exhibits, one consisting of drain-tile and flue-lining was maintained. All of the products shown in the exhibit were manufactured by the Jenkins Brick Company at its Montgomery plant.

California

The Port Costa (Cal.) Brick Works has closed down for the winter. Minor repairs will be made at the plant, which will be reopened for operations in March.

On a newly acquired parcel of ground located at the corner of Monticito and Salispudes streets, Santa Barbara, Cal., the Grant Brick and Tile Company, owners of the Ladera Brick Yards, intend to erect a wholesale supply station which will carry in stock, in addition to burned clay building materials, cement, lime, plaster, sand and gravel. It is also announced that the name of the Grant Brick and Tile Company is soon to be changed to the Parker Brick Company.

The Stockton (Cal.) Fire Brick Company has been exceptionally busy during the past month, which is somewhat unusual for January. The company reports a considerable increase in business during 1916. All the fire-brick companies on the Pacific Coast have had a good market, from reports, and the business is in good shape, with the exception that fuel is so high that the cost of manufacturing is being increased to the point where prices on the product will have to be readjusted. The plants use fuel oil, in this vicinity, for burning their kilns. Present prices are in the neighborhood of $25 per thousand at the factory.

To prevent the loss of a contract that called for 600,000 brick, because the lessee of the plant had left the city,



O. L. Emery, an officer and stockholder in the Standard Brick and Tile Company of Colton, Cal., donned the "jumpers" recently and superintended operations. After putting the plant in operating condition, Mr. Emery succeeded in raising the production to 110,000 a day. This company manufactures a sand-lime brick and gets the sand from the bed of the river which runs alongside the plant. Several parts of the machinery that Mr. Emery found necessary to manufacture brick were first removed from the river's bed, they having been deposited there by a flood.

The new style face-brick being used on the Santa Fe building at Second and Market streets, San Francisco, Cal., was supplied by the Richmond Pressed Brick Company thru the agency of the United Materials Company. This brick is different from any other face-brick thereabouts, not being as smooth as the regular pressed brick, nor as rough as rough-textured brick. It is of a texture somewhere between these two and the brick are variegated in color from light red to blue black. The general effect is a soft reddish hue which makes a splendid appearance. The brick are small, measuring 1⅞ by seven inches. They were made to order after an idea furnished by the architects of the building. Seventy-five thousand are to be used on the building.

N. Clark and Sons, San Francisco, Cal., are figuring on a large amount of new terra cotta work, but have signed no new contracts recently that warrant special mention. General business in terra cotta is steady and the amount which is distributed to building material dealers is growing in quantity from month to month. This would indicate that terra cotta is being used to a considerable extent on small special jobs and in repairing. Vitrified sewer-pipe is not very active just now, but the outlook for early contracts is promising. Sewer-pipe is not ordered as far ahead as some other clay products, largely by reason of the fact that the manufacturers usually have all standard sizes in stock for quick delivery and because sewer work, being public, for the most part, the matter is apt to be delayed to the last moment and then taken up with a rush and roar.

Colorado

Additional kilns are now under construction at the plant of the Golden (Colo.) Fire Brick Company. This expansion was necessary to meet the increasing demand for the company's product.

The Durango (Colo.) Tile and Construction Company is the name of a newly organized company that plans to build a large clay products manufacturing plant in the near future. Drain-tile, building brick and tile, silo-tile and sewer-pipe will compose the bulk of the company's output. The company has a capital stock of $50,000, and is selling shares in blocks of twenty-five at $1.00 each.

Illinois

Brick manufacturers of West Canton, Ill., are at work upon an order which, when completed, will amount to 15,000,000 or 20,000,000 brick, all of which are to be used in erection of factory and warehouse buildings in Chicago.

The new $100,000 plant being erected at Kankakee, Ill., by the Kankakee Brick and Tile Company, will soon be placed in operation. A slight set-back was suffered when a terrific windstorm swept that city recently and blew down a large chimney on the company's new plant.

At the annual meeting of the Purington Paving Brick Company, Galesburg, Ill., held on January 17th, F. G.

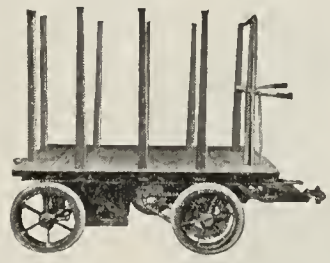
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You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

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Herman A. Holz, Hudson Terminal Bldg., New York, Representative in New England States



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Its long life is a matter of favorable comment. For conveyors, elevators and Power we will prove that it is best.



HETTRICK MNFG. Company

Toledo Ohio

Matteson was elected president, George C. Prussing, vice-president, W. H. Terwilliger, secretary, and William G. D. Orr, general manager. In addition to the above mentioned, George P. Hoover and W. E. Phillips were elected to the board of directors.

It is rumored that as soon as weather conditions permit, work is to be started on the construction of a large brick and tile plant at Hillview, Ill. The land at this point, purchased by the company which is to build the plant, is said to contain clay that has, by many and severe tests, proved satisfactory for the manufacture of terra cotta, porcelain ware, china, floor-tile and other ceramic products. At the beginning, however, the proposed factory is to manufacture face and enamel brick exclusively, and is to have a capacity of from 50,000 to 60,000 brick a day.

Indiana

It is reported that William E. Dee, who operates large clay products manufacturing plants at Mecca, Newport and Cayuga, Ind., has organized a corporation to take over Cayuga and Newport plants.

The Indiana Sand-Lime Brick Company has been incorporated with a capital stock of $60,000 at Greenfield, Ind., by Ernest L. Dobbins, Samuel D. Clayton and Charles S. Tindall.

The William E. Dee Clay Works has been incorporated at Newport, Ind., with a capital stock of $150,000, to mine clay. The directors of the new company are William E. Dee, Ellis E. Aspury and Glen O. Youmans.

The Hoosier Brick Sales Company has been incorporated at Indianapolis, Ind., with a capital stock of $12,000 for the purpose of dealing in brick and other building materials. The directors of this company are Frederick B. Adams, E. W. Adams and Sherman H. Tompkins.

The old clay plant of the Cayuga (Ind.) Brick and Coal Company which was purchased recently by William E. Dee of Chicago, will be reopened soon. The new superintendent and machinists have arrived and are making preparations for a resumption of operations. Drain and building tile will be manufactured at the plant and about one hundred men will be employed.

Iowa

The brick and tile manufacturing plant formerly operated at Center Junction, Iowa, by Thomas Dawson, has been sold to T. F. Danaher of Minneapolis, Minn., according to Mr. Dawson. Newspaper reports, however, announce that M. G. Alsever, Charles Burmeister and S. K. Thompson of Center Junction, and Thomas White of Anamosa, Iowa, have acquired possession of the property and contemplate operating the plant during the coming season.

At the annual meeting of the Des Moines (Iowa) Clay Company, held recently, the following officers were re-elected: F. C. Hubbell, president; Leon Goodman, vice-president and general manager; I. M. Earle, secretary, and C. C. McCormick, treasurer and salesmanager. The board of directors elected at this meeting is composed of the following men: F. C. Hubbell, I. M. Earle, Leon Goodman, G. E. Winter, Bertis McCormick and C. C. McCormick.

Kentucky

It is reported that the Ashland (Ky.) Fire Brick Company has sold its Kemp avenue plant at Ironton, Ohio, to Pittsburgh interests.



Bowman Brothers, lumber dealers at Richmond, Ky., have added a line of brick, sand and lime to their lumber business.

At Harlan, Ky., the Hubbard Lumber Company has added a full line of common and pressed-brick to its stock of wares. The company, tho dealing until recently in lumber, has erected for itself a white brick building.

J. E. Merrick was elected president of the Louisville Builders' Exchange at the annual meeting of that organization held recently. C. C. Childers and T. M. Wintersmith were chosen vice-presidents, while J. M. Vollmer was re-elected secretary. None of the officers are brick men, but the organization includes a number of contractors who do work in brick and tile.

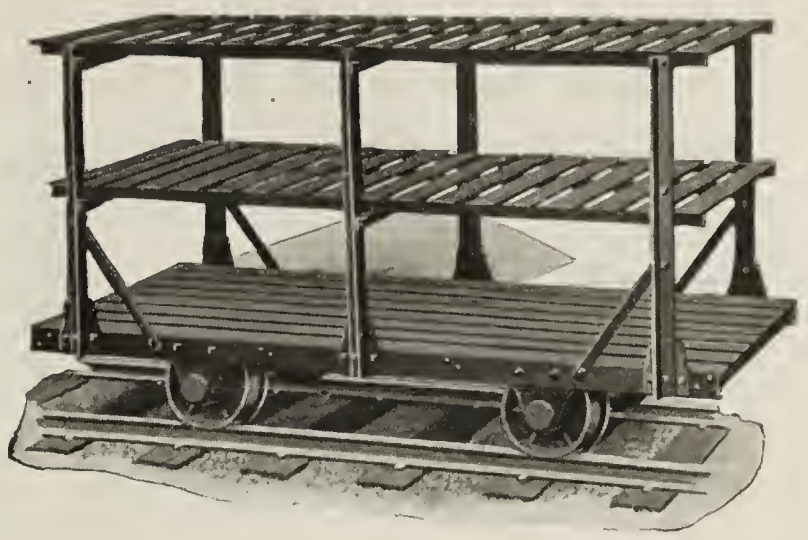
As the spring advances there is more and more talk about building developments in Louisville. The auditorium is assured, so is a Southern Baptist Training School for which $150,000 has been raised. A new club house to cost $300,000 is also definitely projected, while the Athletic Club organization has been meeting with so much encouragement that it now proposes to put up a building to cost $400,000 instead of $300,000, as was first planned. In addition L. Jacobson has taken out a permit to put up a three-story brick apartment on South Fourth street and there are a large number of residences of various types in prospect.

An increase in the price of brick has been put into effect in Louisville, the Coral Ridge Clay Products Company taking the lead in publishing a sharp advance, altho the Southern Brick and Tile Company had previously announced something of an increase. The Coral Ridge Company's common-brick now sells at $8.50 a thousand, delivered anywhere in town, which is an increase of $1.25 over the selling price of last year. In announcing the advance the universal flat rate was made effective and does away with the nuisance of having to figure drayage on every order. An advance of this kind will become general as it is essential in order to equalize increased costs of production. Face-brick sold in Louisville has also generally advanced in price.

Brick and tile, along with other fire-resistant building materials, have gained another moral victory by the terms of the compromise of a controversy which has deadlocked fire insurance operations in Kentucky for the past six months. By the terms of the compromise, among other things, a penalty of a ten per cent. increase in premiums is placed on mercantile property in the country and in towns without fire protection. There is a reduction in the rate on similarily described residence property, but this is converted into an actual advance by another provision that permits an increase in the cost of the term insurance. These provisions relate, of course, to the basic rate, which is sharply reduced by credits when conditions warrant. So when brick salesmen hereafter approach the merchant about to build a store in an unprotected town, the comparative insurance rates will be a much more forceful talking point than has ever been the case heretofore.

Maine

The Capital Clay Products Company was organized on January 20th, at Augusta, Me., with a capital stock of $300,000, for the purpose of manufacturing and selling clay products. Of the capital stock, $200,000 is common and $100,000 preferred. The president and treasurer of the new company is E. M. Leavitt of Augusta, Me., and the clerk is E. L. McLean. The board of directors con-



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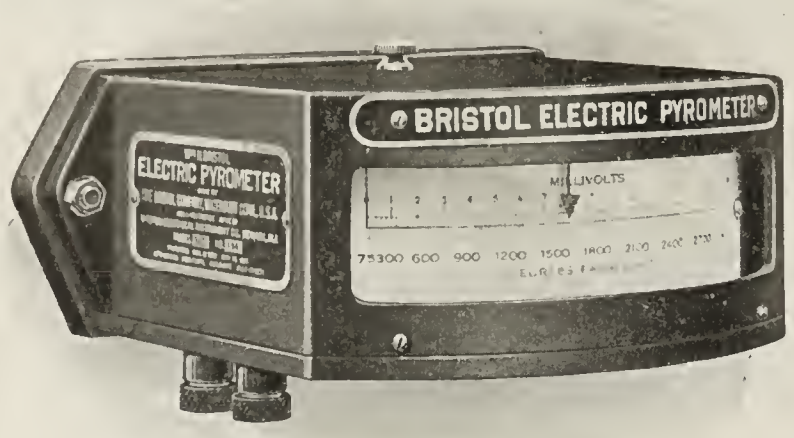
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Ample private baths with both fresh and sea water, with showers on every floor—surf bathing from hotel.

Unusually extensive lounges, porches and public rooms.

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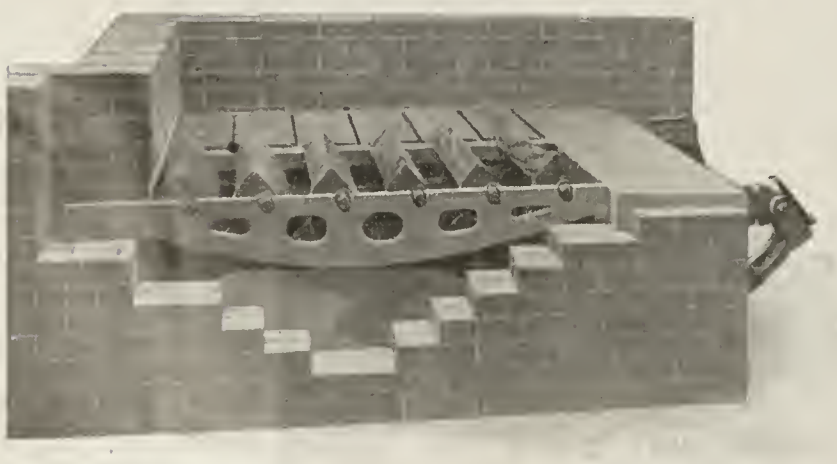
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BUFFALO, N. Y.



sists of Ernest L. McLean, E. M. Leavitt and G. A. Clark, all of Augusta.

Michigan

Improvements are now being made on the plant of the Grand Rapids (Mich.) Brick Company, which, when finished, will increase the daily capacity from 75,000 to 150,000 brick. Enlargements are being made upon the plant and new machinery is being installed.

According to J. J. Haarer, superintendent of the Wolverine Brick Company at Corunna, Mich., that company's plan will be placed in operation about March 1st, with a large amount of new and old business on hand. A number of orders have been secured recently, according to Mr. Haarer, and the company is far back on its orders for last year. The plant was closed several weeks ago because of the high price of coal and the inability to obtain it at any price.

Minnesota

The name of the Minnesota Brick and Tile Company of Austin, Minn., was recently changed to the Austin Brick and Tile Company. Contrary to its usual custom, the company closed its plant for the winter several weeks ago, due to the scarcity of coal, and the high operating expenses incident to winter manufacturing. The officers elected for the coming year at the annual meeting of this company held recently were John Rahilly, president; Matt Fisch, vice-president; William H. Gleason, secretary and manager, and J. L. James of Thornton, Iowa, treasurer. Three new members were elected to the board of directors at that meeting, these being Matt Fisch and C. F. Showalter of Hampton, Iowa, and J. A. Bleeker of Ackley, Iowa.

An interesting decision was recently handed down by the Supreme Court, affirming the decision of the District Court of Brown county, Minnesota, in the action of the A. C. Ochs Brick and Tile Company of Springfield, vs. the Chicago and Northwestern Railroad. This suit grew out of an order handed down by the Minnesota Railroad Warehouse Commission to the Chicago and Northwestern Railway to construct a side track, or spur, to the plant of the Springfield company. The carrier appealed from the order of the commission and the case was tried in the District Court of Brown county. The order of the commission was sustained. The railroad then appealed from the decision of the District Court, and the present decision is the result. According to a provision of the order of the commission, the brick and tile company, which operates one of Minnesota's largest and best plants, was to stand a part of the cost of constructing the spur.

Montana

An entirely new board of directors was elected by stockholders of the Roundup (Mont.) Brick and Tile Company at their annual meeting held recently. The board, as it now stands, is composed of the following men: William Russell, Charles W. Thomas, William F. Ording, H. A. Seitzeinger and George Bachman. It was found at this meeting that additional capital was required for needed improvements and to take care of the operating expenses of the plant until the sale of brick provided for this itself. The former board of directors authorized the sale of additional stock in the company to the amount of $15,000 for this purpose. With the money received from this issue, a tramway and permanent kilns will be constructed. It is proposed to place



the plant in operation as soon as possible, so as to have a large supply of brick on hand when spring opens.

New Hampshire

The Claremont (N. H.) Brick Company recently filed articles of incorporation with the secretary of state. The object of the concern is to manufacture brick and other clay products, and it is capitalized at $25,000. The incorporators of the Claremont company are Charles V. Paddock, Oscar B. Rand, Roy D. Hunter and A. E. Paddock, of Claremont; Charles Thrasher and F. W. Blanchard of Ascutneyville, Vt.; A. F. Phillips, J. H. Kinery and F. L. Kabot of Windsor, Vt.

New York

The Greater New York Brick Company is reported to have purchased a strip of waterfront property at Coney Island creek and West Eighteenth street, Coney Island.

Ohio

The Wadsworth (Ohio) Brick and Tile Company was recently organized with a capital stock of from $75,000 to $200,000, to manufacture burned clay products.

Two thousand clay plant employes in the Upper Ohio valley district have been granted a voluntary increase in wages of ten cents a day by brick and sewer-pipe manufacturers.

The D. C. Brick Company, Cincinnati, Ohio, has been incorporated with a capital of $10,000, to deal in brick. The incorporators are, Frank A. Hoiles, Malcolm McAvoy, Howard Ferris, Hugh H. Bates and Edwin W. Franks.

Altho no details have been given out, it is understood that certain parties are considering the construction of a new brick plant in, or near, Coshocton, Ohio. It is reported that options have been secured on clay property and that the erection of the plant may begin in a few weeks.

The North American Brick and Clay Products Company, Mansfield, Ohio, has been incorporated with a capital of $300,000, to manufacture brick and clay products. The incorporators are, S. J. Colwell, W. W. Sharp, H. K. Beck, J. B. Lindley, J. Harvey Craig and others.

Announcement has been made that a large number of the eastern railroads has ordered embargoes on cars carrying brick from Ohio. These embargoes have the effect of holding up shipments to Buffalo, and other New York points. It is quite a hardship on factories in Ohio, many of which sell hundreds of thousands of brick in New York state.

At a recent meeting of the stockholders of the Alliance (Ohio) Clay Products Company, the following directors were elected: B. F. Weybrecht, John Eyer, J. B. Wilcox and John Bonner. The officers elected for the coming year are B. F. Weybrecht, president; John Eyer, vice-president, and J. B. Wilcox, secretary and treasurer. A dividend of six per cent. was declared.

Brick roads, one hundred and sixty-four miles in length, will be built in Ohio during the next five years, if the House of Representatives follows the lead of the Senate, which unanimously passed the White federal aid bill. By it the state agrees to accept $2,900,000 from the national government for road building, with the understanding that a like amount is to be spent by the state.

The National Paving Brick Manufacturers' Association, with headquarters at Cleveland, Ohio, has now become

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"Sandinavia" is the belt for you to use for power transmission—elevating and conveying.

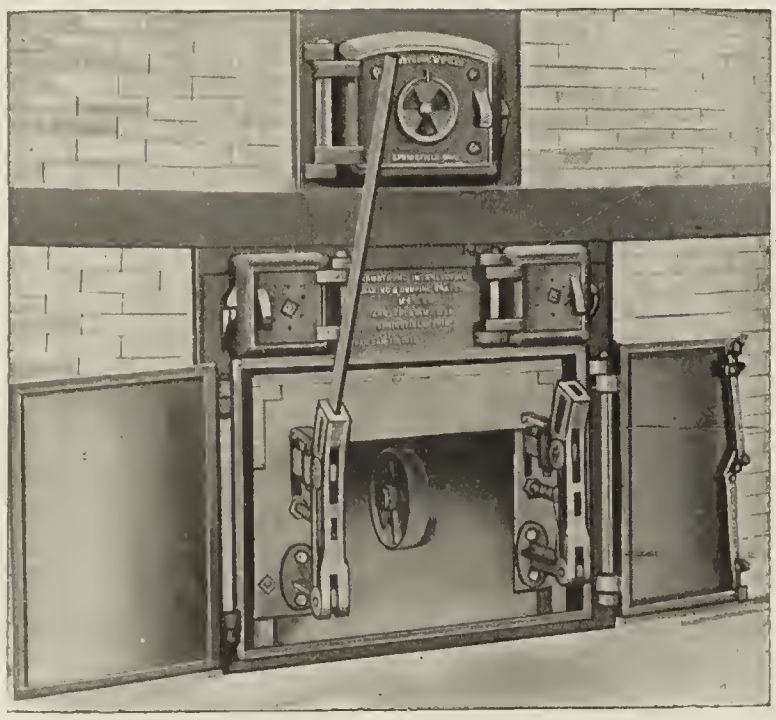
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Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

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SPRINGFIELD, OHIO

international in its scope. Late in January application for membership was received from R. Dobson, a clay products manufacturer of Rondebusch, Cape Colony, South America. He was admitted. Other new members admitted recently are the Streator (Ill.) Clay Company and the Windsor Brick Company of Akron, Ohio.

The extremely high cost of coal is now troubling brick factories in the Buckeye state. With fuel bringing from $2 to $2.50 more per ton than usual, the cost of manufacturing brick, and in fact, all clay products, is rapidly rising, and consequently, prices have to be advanced. Dealers and consumers generally are reasonable and see the necessity for the advance. Therefore, not much opposition has developed.

It is reported that the board of administration of Ohio is contemplating moving the state's brick plant from Junction City to the grounds of the Athens State Hospital at Athens, Ohio, this spring. Engineers have reported that fire-clay or shale of an unusually high grade underlies the 960 acres surrounding the hospital. The lease on the Junction City plant, which costs the state $4,000 a year, expires April 1st so that the change, if made, will take place around that date.

Charles Frank, salesmanager for the Nelsonville (Ohio) Brick Company, with offices in Columbus, reports rather bright prospects for street paving and brick road work in the spring. He says there are some conditions, however, that make the situation unsettled, such as a lack of money on the part of municipalities and the labor situation. The two plants of the company located at Nelsonville and Logan, Ohio, are still being operated in spite of the high price of coal.

The car supply for brick manufacturers and shippers in Ohio is growing worse instead of better. On many lines cars are almost unobtainable, and as a result, many brick shipments are being held up. Congestion at junction points and a lack of motive power on many roads are among causes for this condition. Embargoes on brick shipments to the north and northwest are holding up orders. An embargo into Detroit has held up a shipment of about 1,000,000 sold by a Columbus concern.

The paving bond issue, approved by the voters of Cleveland, Ohio, last fall, is beginning to bear fruit. The question of where the money was to come from to improve the streets of the "Sixth City" being settled, preparations are now being made for actual work, as is evidenced by large signs placed on all thorofares destined for immediate improvement. These signs state to builders and contractors that no streets will be permitted to be torn up after the new paving is in, and that all underground work must be done before the paving starts. Possibilities for the extensive use of brick in this new paving are good.

All of the members of the Home and Investment Builders' Association, formally launched at the Business Men's Club, Cincinnati, Ohio, recently, have entered into an agreement not to let a single contract for brick construction to members of the Brick Contractors' Association affiliated with the bricklayers' union. Home builders, under this resolution, will have the right to let contracts under the old methods, wherein the brick contractor was willing to lay brick furnished by the owner or builder. Most of the members reported having had no trouble in letting contracts under the time-honored system and the general membership was urged to continue operations along this line.

The first annual meeting of the Ohio Builders' Supply Association closed at the Southern Hotel, Columbus, late



in January after a most successful gathering. A banquet wound up the sessions. Officers elected for the year were: W. O. Holst, Toledo, president; J. L. Price, Marion, vice-president; W. E. Wright, Akron, vice-president; W. H. Smith, Newark, vice-president; B. H. Hess, Cincinnati, vice-president; F. H. Kinney, Cincinnati, secretary, and J. W. Thompson, Coshocton, treasurer. H. S. Gaines of Columbus, was elected assistant to the president and will have active charge of the affairs of the organization. Many brick dealers are affiliated with the association.

According to a recent announcement, the corporate name of the Queisser-Bliss Company has been changed to that of the R. L. Queisser Company, this change becoming effective on February 1st, 1917. The officers of the new organization are R. L. Queisser, president; A. H. Bedell, vice-president and treasurer, and E. A. Gunn, secretary. The offices and exhibit rooms of the company are located on the twelfth floor of the Schofield building, Cleveland, Ohio. In addition to the burned clay building materials handled by this company, practically all types of building specialties and supplies find a place in its exhibits.

The risk of losses incurred by material dealers in the event of failure of contractors in connection with public work, at least, will be considerably lessened following an edict from the Cleveland (Ohio) city hall, requiring that all surety bonds covering public work contracts shall include a stipulation that the bond shall be for the use of those parties supplying material and machinery to the work, and for the use of workers on the job in question, as well. Heretofore, the material interests have had no such protection. Decision on this phase of public construction work, received from city hall by the Cleveland Building Trades Credit Association Company, has been followed by a distribution of copies of the letter to material firms.

Brick for the proposed new coliseum at the state fair grounds, Columbus, Ohio, may be made by prisoners at the state brick plant near Junction City. A proposition to have the board of administration furnish the brick is being considered, and if the legislature makes the appropriation for the building, the board will make an effort to furnish all the brick necessary for the building. While the proposed new structure is to be mostly of steel, there will be much work that can be done by prison labor, and the work being within a short ride from the penitentiary, it is probable that the board will also ask the employment of as many prisoners as possible on the building.

A complete reorganization of the Shawnee Flash Brick Company of Shawnee, Ohio, has been completed by the incorporation of the Ohio State Brick and Stone Company of Columbus, with a preliminary capital of $10,000. Within a few days after the incorporation the capital was increased to $400,000. The incorporators are J. T. Broughton, George A. Knorr, M. R. Rager, L. R. Van Hock and J. G. Bishop. According to the terms of the charter, the company is authorized to manufacture and sell brick and clay products, and to deal in stone. The plant of the Shawnee Flash Brick Company has been taken over and is now being put into condition for operation after its long idleness. At a receivers' sale six months ago the plant and all assets were purchased by a committee of bondholders, consisting of Daniel Mauger. John E. Koontz, Jacob Enlow and L. B. Tussing.

Oklahoma

The Southwest Building Supply Company, whose main



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These wheelbarrows are perfectly balanced; when the load is on and the handles are lifted at least 90% of the weight is on the axle, the other 10% is on the hands, just enough to steady the wheeler. The axle is under the load, not at one end of it.

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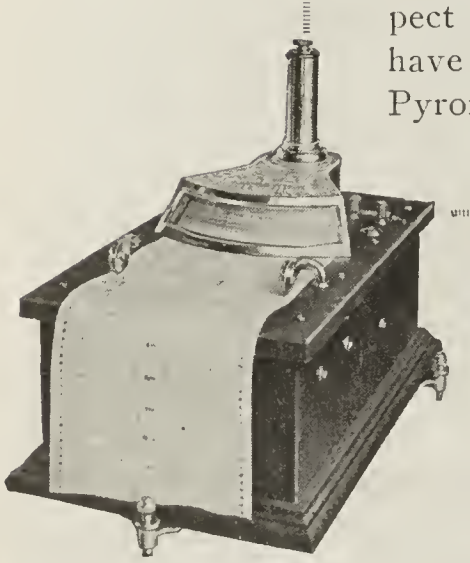


The barrow slides if you want it to. The hind legs do not rip and catch on obstructions.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

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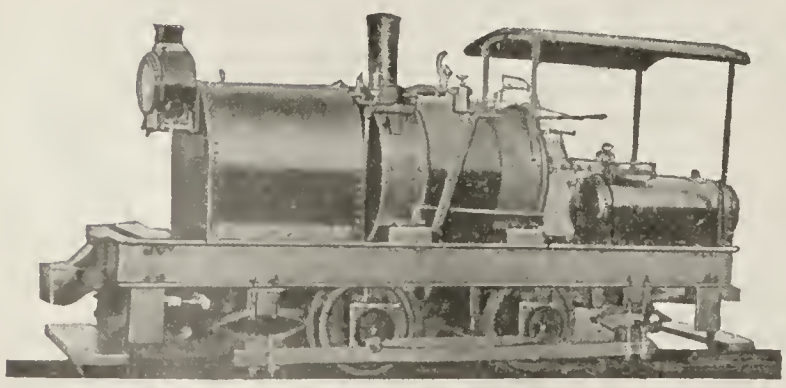
We would be glad to furnish you with the names of users, so that you can investigate for yourself on some of the largest plants in the world, just what to expect in results after you have installed Price Pyrometers.



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Kerosene is about 9c a gallon—why not use it to run a BELL Steam Locomotive on your job? —**Particularly** as you can dispense with a licensed engineer and pull 50% more than other steam outfits. **Furthermore**—the first cost of the BELL is lower.

Bell Locomotive Works, Inc.
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offices are located at Springfield, Mo., recently opened a branch office at Tulsa, Okla., in which they are displaying their complete line of "Hi-Grade" products, including face-brick, hollow building tile and common-brick. Altho this company is as yet in its infancy in the business of selling clay products, it has booked orders for more than 6,000,000 brick in the past two months.

Oregon

It now seems assured that the valuable fire-clay deposits located on the Molalla river about eight miles southeast of Molalla, Ore., will be developed. The Molalla Fire Clay Company, with a capital stock of $100,000, has been organized to work the eighty-acre deposit. The president of the new corporation is P. M. Boyles; vice-president, Guy Dibble, and secretary-treasurer, Ina Dibble. H. H. Daily, a man of many years' experience in the manufacture of pottery, will have charge of the plant which the company is planning.

Reports made at the annual meeting of the Warrentown (Ore.) Clay Company, held recently, were very encouraging. The company has purchased seventy-nine acres of clay land on the Lewis and Clark river, and has secured a valuable fifteen-acre tract on the Skipanon river as a donation from the D. K. Warren estate. Excellent transportation facilities are now almost completed, the company's plant being favorably located for the shipment of its product by rail or water. The main buildings have been erected and seven cars of machinery are now ready to be installed. The company has arranged for its fire-clay and will manufacture its own fire-brick for use in the kilns to be erected. The board of directors elected for the coming year consists of John W. Myrick, Fred L. Warren, Frank M. Warren, Walter C. Smith and Warren Overpack. The officers are John Myrick, president; Fred L. Warren of Portland, vice-president; G. Clifford Bartlow, secretary; C. R. Higgins, treasurer, and Warren Overpack, general manager.

Pennsylvania

Altho the plant of the Tyrone (Pa.) Brick and Tile Company has been leased for some time, William Fuoss, president of that company, reports that it expects to operate the plant again later on.

The Elk Fire Brick Company of St. Mary's, Pa., has purchased the large plant of the Renovo (Pa.) Fire Brick and Clay Company. It is preparing to make extensive improvements and enlargements to its newly acquired property.

South Carolina

The McNamee Clay Company is the name of a newly organized company at Kaolin, S. C., which has been incorporated with a capital stock of $200,000, by Pittsburgh and Cleveland parties, for the purpose of mining kaolin.

A modern plant for mining and processing kaolin has been almost completed at James Crossing, Richland county, S. C., by the Southern Clay Company. This company, which also owns the kaolin properties formerly operated by the Palmetto Kaolin Company, maintains its headquarters in Sumter. A. C. Phelps is its president and treasurer, H. J. Harby, vice-president, and J. T. Nash, manager of the mines and plant.

Texas

According to a recent announcement from M. Kimbaugh



of Greenville, Texas, he has purchased the plant of the Greenville Brick Company.

The heavy demand for the products of the International Brick Company of El Paso, Tex., recently made it necessary for the company to erect a large rectangular down-draft kiln, in which it burns only dry-press brick.

Something new in conventions was recently staged by the Frasier Brick Company at Dallas, Tex., when it had all of its representatives and sales agents meet at the company's offices to discuss ways and means of increasing the company's ouput. During the morning a business session was held, while the afternoon was given over to an automobile ride thru the city, followed by a dinner and entertainment at the Dallas Automobile Country Club. Those attending the company's convention were H. B. Oxford, Beaumont; H. M. Abernathy, San Antonio; M. Staniforth, C. F. Harris and H. C. Vandeveer of Wichita Falls; T. C. Boyd, Ginger; V. J. Chandlin, F. D. Bates, and J. H. Payne of Dallas. An increase of one hundred per cent. in sales during the year of 1916 was reported by the men and plans were made to equal, if not excel, that record during 1917.

Washington

The Washington Magnesite Company has been incorporated at Spokane under the laws of the state of Washington.

Wisconsin

A. O. Waechter of the Falls Brick and Tile Company located at Sheboygan Falls, Wis., reports that his company is going to operate a bucket excavator that it has used for stripping, to dig the clay for the plant.

Brick and tile will not be without representation in the big "Home and Real Estate Show," to be held at Milwaukee from April 9th to 15th. The Wisconsin Face and Fire Brick Company has already arranged to occupy two spaces at the exhibit, and is planning to erect an old fashioned fireplace display that will make a favorable appeal for burned clay products.

* * *

CONSTRUCTIVE CONVENTION *in* NORTHWEST

(*Continued from Page* 345)

executive committee made by F. B. Martin, manager of the Twin City Brick Company's Minneapolis office, and was followed by reports of the nominating, executive and resolutions committees.

LAST YEAR'S OFFICERS RE-ELECTED

J. E. Ray of the Stout Institute at Menominie, then spoke on the work being done at that school in the education of mason-contractors, which resulted in a discussion as to how the manufacturers and bricklayers' union could co-operate in increasing the number of bricklayers. This paper was the last to be read at the convention, and was followed by the re-election of last year's officers, who are B. Frank Pay, Mankota, Minn., president; L. G. Rose, Minneapolis, Minn., vice-president, and R. H. Smith, Minneapolis, Minn., secretary and treasurer.



HARD digging? Yes—but what's a great deal *more* important, this picture shows *thorough* digging being done. This particular "Marion" is at the plant of The Fredonia Brick Co., Fredonia, Kansas, but you can find its splendid performance duplicated in practically every section of the country—for

The "MARION" is the CLAYWORKER'S SHOVEL

and whenever owners of brick-plants begin to get down to brass tacks on the question of their operating costs, and the efficiency of their plants, you'll generally find them inquiring about the right sized "Marion" to do the work.

Our special Brick-Makers' Book is full of sound, interesting *facts*. Glad to send yours if you request Catalog A120, addressing

Marion

We Make Excavating Machinery of Every Description

Branches:
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THE MARION STEAM SHOVEL COMPANY

Established 1884 MARION, OHIO

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USE "Brick and Clay Record" Classified Ad Columns because you'll get quick action.

Published every other Tuesday, it's the **newspaper** as well as the journal of the clay-products industry.

If you need help—have a machine for sale or are looking for a second-hand machine—a classified ad in "Brick and Clay Record" will bring results.

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BRICK AND CLAY RECORD



Eliminates the Back Breaking Labor of Wheelers

The Automatic Electric Elevating Platform truck carries six times as many brick in one load, as does a wheeler with a wheel-barrow. Does it much faster—does not dump its load—never gets tired.

It is always on the job, and is equivalent to having five or six men come to your plant, and work for you without wages.

Many clay-working plants in your vicinity are saving by the use of storage battery trucks, from $2,000 to $3,000 a year per truck. The same savings may be made in your plant.

Write for facts showing how these practical time and labor saving trucks have quickly paid for their installation in hundreds of plants.

The Automatic Transportation Co.
2933-2965 Main Street
Buffalo, N.Y.

Pioneer Manufacturers of Electric Storage Battery Trucks, and the Only Truck Manufacturers Awarded Gold Medal at San Francisco Exposition.



POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

The shortage of fuel gas for kiln firing in the Ohio valley has been one of the most serious problems the domestic ware manufacturers have been forced to face in years. Production has been so reduced that it is confidently believed the manufacturers will not be able to "catch up" this year. Some manufacturers contend that the loss in production so far this year, due to numerous causes, has been between forty and fifty per cent. The price of fuel has advanced two cents per thousand cubic feet, and when it is taken into consideration that millions of cubic feet of gas are used monthly by individual pottery manufacturers, this increase in cost means the additional expenditure of thousands of dollars annually.

Representatives of pottery manufacturers who had complete lines on display at Pittsburgh, Pa., during the January buying season, announced that heavy orders were placed by all buyers who visited the display rooms. It was understood from the start of the pottery exposition that orders would only be accepted for delivery as soon as possible, and that prices prevailing at the time of shipment would apply on all invoices. At the present time, domestic ware is being sold on a basis of twenty per cent. plus the base of all invoices.

It is reported that a number of potteries have within the week notified their customers of a further advance in prices. It has been understood for some time that the smaller potteries have had the move under consideration, feeling that they were justified because of the steadily increasing production costs. Some orders, it was reported, have already been placed at the advance, buyers feeling that it was just as cheap to buy now as to wait until another advance was impending.

The Saxon China Company's plant at Sebring, Ohio, has been sold to the French China Company of the same place, of which Oliver H. Sebring is the principal stockholder. The consideration was $500,000. Fred Sebring, chief owner of the Saxon plant, is retiring from business on account of ill health. With the addition of the Saxon company's property, the holdings of the French China Company will be increased to thirty-five kilns and their annual product will reach a value close to $2,000,000, Mr. Sebring announced.

The manufacture of ware at the new plant of the Southern Potteries Company at Erwin, Tenn., was started on January 25th. Many workers in this new pottery were secured from the Sebring and East Liverpool (Ohio) districts. It has developed that the ranks of the pottery workers are being thinned by workers leaving the original district to go elsewhere. Hundreds of positions are open in the East Liverpool, Wellsville, Steubenville, Sebring and East Palestine districts.

Next week will see the beginning of operations by the Clay Casting Company of New Cumberland, W. Va. The factory, formerly known as the Chelsea China plant, has been remodeled and has undergone general repairs. New machinery has been installed, two new decorating kilns built, and when all the work is completed, it will be a model plant for manufacturing china specialties. From

SAY "I SAW IT IN" BRICK AND CLAY RECORD

one hundred and fifty to three hundred people will be employed.

The Taylor, Smith and Taylor Pottery Company of Chester, W. Va., has installed a sagger-making machine, and thru this means expects to overcome the shortage of saggers in its several plants. The machine is being watched by other manufacturers, and should its success be established, and there is reason for believing that it will be, other manufacturers will equip their plants with similar machines.

The shortage of gas continues in the Ohio valley district, and kilns are being lost with marked regularity. This is curtailing production and in turn holds back the starting of finished orders to the jobbers and other buyers. The pottery manufacturers are doing all in their power to relieve the present situation.

At the annual meeting of the stockholders of the Knowles, Taylor and Knowles Pottery Company at East Liverpool, Ohio, held recently, Homer J. Taylor was reelected president. He is the youngest man at the head of a pottery in the western district, having succeeded his father upon the latter's death.

James McHugh, who for many years represented the Steubenville (Ohio) Pottery Company, is now a special representative of the Scientific Products Company, Steubenville.

* * *

HIGH COST *of* IGNORANCE

(*Continued from Page* 341.)

FACTS SHOULD BE IN ORDER OF IMPORTANCE

Furthermore, the efficient cost system must be designed to bring the vital facts of operation to the executive in the exact order of their importance. If this rule is followed and the general manager is overworked, it will be the unimportant details which he will fail to reach—*not the important facts which he should know.*

In addition, the cost system must be so arranged as to impress its message in regard to the administrative policy, factory, sales and financial, upon the management forcibly when necessary. When something is wrong it should, as it were, shout that fact aloud so that it cannot be overlooked.

Finally, it must not take up the time of the busy executive, *except* when such attention is vital to the success of the business. This is what is known as the "exception principle," and when followed, the result is an arrangement of the costs in such fashion that only a few figures come regularly to the management. These are so selected, however, as to reflect the efficiency of operation exactly. The slightest fluctuation calls for an investigation, and when an investigation is necessary, reliable information must be available in the fullest detail.

EFFICIENCY STANDARDS FOR COST SYSTEMS

To determine the efficiency of a cost system, then, it should be measured according to the following standards:

1. Is it economical as to labor and material?

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE R. D. WOOD AND COMPANY

Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

PROFIT

by the

EXPERIENCE

of other

Clayworkers

The Zeeland Brick Co. built four of our kilns and have contracted for four more. Here are the kilns.



After operating these kilns several months they wrote this letter:

Zeeland, Mich., Nov. 11, 1916.

Hook Patent Kiln Co.,
Columbus, Ohio.

Gentlemen: It is a pleasure to tell you that your system is producing **excellent results** in the 30 kilns at our plant. We regularly secure **uniform burns** on large and small hollow-ware in 54 hours, including the watersmoking. The fuel consumption is from 9 to 10 tons of coal per kiln. We do not have a soft tile in the kiln and there is **less than 1% loss** in burning.

The kilns did not cost as much as you estimated. Just as soon as possible, we will build the other kilns of your type.

Yours truly,

ZEELAND BRICK CO.,
By G. Veneklasen,
Secretary & Treasurer.

We will tell you what the Hook system will do for you if you will tell us the number and size of kilns you have, kind of ware you make, present burning time and fuel consumption. This is the time—WRITE.

Kiln Plans and Accessories or Kilns built ready for ware.

HOOK PATENT KILN CO.

HIGH & SPRING STS., COLUMBUS, OHIO

2. Is it simple enough to be understood by all those who are to make use of it?

3. Does it truly reflect operating conditions?

4. Does it accentuate the matters of importance in the order of their importance?

5. Does it bring the facts to the executive promptly enough so that faults of operation may be avoided?

6. Are the facts brought to the executive with due regard for the value of his time?

7. Is this done with sufficient insistence as to force the executive to the correct decision when necessary?

If you can mark a cost system one hundred per cent. efficient under these standards there can be no doubt as to whether the system is earning its right to existence as a producer, by its active assistance in the creation of dividends for the stockholders of any corporation.

I shall not attempt to explain in detail the method of drawing up forms, of symbolizing and naming accounts or of designing charts and graphs. A different line of procedure must be followed in each case and that can be determined only after a thoro study of the needs of each particular business. Scientific management is the application of a philosophy to conditions which exist. I have endeavored to state the philosophy. You must furnish the conditions and those conditions must be studied before scientific methods of application can be worked out.

COST OF IGNORANCE HAS BEEN HIGH

In the past, the cost of ignorance has been high in America, but it has been prohibitive to only about ninety per cent. of our business ventures. If ignorance has been bliss, we are fast approaching a period of world competition where wisdom will *not* be folly. We must know ourselves and our business in a way which never has been necessary heretofore, and an efficient cost system is one of the surest ways to effective self-analysis and to that scientific industrial efficiency which inevitably follows.

* * *

PREDICTS WAR SCARE

WILL HELP BUILDING

(*Continued from Page* 336.)

Common-brick was the most susceptible to shrinkage and yet it showed no sign of revision downward. One trouble looked for is the fact that government business will have the right of way over the railroads, and should there be open hostilities, the building business, already much troubled by freight enbargoes, will have still more difficulty getting shipments thru with "Uncle Sam" in control of the railroads.

The day before the latest note came from Germany regarding submarine warfare real estate interests, finding a condition approaching under-construction in New York for the first time since 1895, were clamoring for preference on architects' boards. Invariably, no matter how favorable building conditions may be there is always some retarding element in connection with general building projection. Tight money, over-production—the result of speculation—and labor complications have all played their part. The difficulty paramount in 1917 a



few weeks ago seemed to be increasing doubt as to whether it would be physically possible for building materials, manufacturers to supply the demand, so great was it becoming, and now, to cap the climax, along comes the war scare that is bordering so close to the real thing that it is rather serious. Since January 1st the fact of the demand being greater than the supply was developed conspicuously with regard to brick, cement and steel.

ALTERATIONS REQUIRE MUCH CLAY PRODUCTS

The normal uptown movement of tenants this coming spring is expected to be more than counteracted by the removal of the needle industries under the "Save New York" propaganda. There is, therefore, an abnormal amount of alteration work at present requiring large quantities of basic materials, such as burned clay fireproofing, gypsum partition block, brick and cement. The reflection of this demand is shown clearly in the fact that in the common-brick market on January 29th there were 7,600,000 brick available in New York, and out of this, had to come before February 1st, 5,600,000 brick to take the place of barges being unloaded at docks in Manhattan, Bronx and Brooklyn, leaving not more than two million brick unassigned in the wholesale market on the first of the second month of 1917. And that quantity is supposed to last until navigation opens the Hudson which is now blocked with ice. This explains why, with diverse weather conditions, brick remained at $9 to $9.50 a thousand with usual orders being taken at $9.25 and the firm conviction, as the Dow Service declares, that February will witness a $10 brick market.

With the increasing of Portland cement quotations in Pittsburgh, the New York prices were changed from $2.07 to $2.17 a barrel, while in Newark, N. J., but nine miles away, the same commodity was quoted at $2.30 a barrel with the usual bag discounts prevailing in all places. These conditions explain why architects are extremely busy and the demand for desirable plots of ground in the commercial and shopping district sharpened.

TWENTY-FOUR MILLION BRICK NEEDED

An illustration of the tenseness of the building material market is shown in the fact that in a count of building operations advanced beyond excavation from Pier 5 East River to Fordham on both banks of the Harlem River brick requirements between now and the first of March will be twenty-three million eight hundred and five thousand. The Cornell Steamboat Company has advised the brick dealers that it has tied its boats up for the winter and no more brick will be available from the Hudson river district until after March 1st. The Raritan river district has only enough brick on hand to take care of spot sales at $9.25 and $9.50. The total amount of common-brick in the hands of dealers on December 1st was 30,000,000 as against a total on hand last year at that time of 60,800,000. Some of the leading dealers in Brooklyn and some in New York city have been riding from these stocks so that the total now on hand has gone to low water.

There is an increasing tendency to use hollow-tile and stucco in suburban dwelling construction which is encouraging manufacturers of the first-mentioned product.

JANUARY PLAN FILINGS IN GREATER NEW YORK

The monthly report of building operations in Manhattan as given out by Superintendent Ludwig shows plans filed for thirty-nine new buildings in January costing a total of $4,464,800 as against thirty-two for January



LAKEWOOD
ELECTRIC TRANSFER
TRUCKS

Are made single, double or triple, and are built only to specifications. This assures you that you will have a transfer truck that is exactly suited to your needs.

Our Engineering Department will gladly furnish layout and specifications for tracks and transfer trucks, all worked out on a scientific basis to insure greatest efficiency and economy of operation.

Will you let us come and talk this over with you? No obligation on your part.

The Lakewood Engineering Co.

Cleveland, Ohio

We make cars of all kinds, track and track equipment, clam shell buckets—the line that has established the

"Leadership of Lakewood"







The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men— in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.20
Brick Drying (English edition)	1.00
Brick Houses and How to Build Them	1.00
Bricklaying, Rudiments of Practical	.60
Bricklaying System	3.00
Brick Work (Walker)	.60
Brickwork and Masonry	3.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	5.00
Clay Glazes and Enamels	5.00
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.25
Clay-Working Problems	1.50
Economies in Brickyard Construction and Operation	1.00
Effect of Heat Upon Clays	2.00
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Glazer's Book	1.00
Hollow Tile House, The	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.50
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.40
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Efflorescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

If the book you want isn't here ask us to get it.

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent import duty.

***Address,* Book Department,**

Brick and Clay Record

445 Plymouth Court, Chicago, Ill.

of last year, costing a total of $4,588,950. Alterations in January exceeded one million dollars which was the same figure as last year. In the Bronx from January 1st to January 27th, plans were filed for twenty-eight new buildings, costing $712,375 as against $1,740,200 for fifty buildings in the same period of last year. Alterations for the same period of this year totaled $63,625, as against $41,050 for last year.

Brooklyn reports plans filed for 216 new buildings, costing $2,910,200 from January 1st to January 27th, as against $3,092,820 for 342 buildings in 1916. Alterations for Brooklyn are valued at a trifle over $200,000, which is about what they totaled for a corresponding period of 1916. There has also been a falling off in Queens, this borough reporting filings for 211 buildings, to cost $620,465 as against 411 buildings for the same period last year, costing $1,595,584. Alterations this year are valued at $46,691 as against $103,012 for last year. Richmond borough shows a big increase, the only increase of all the boroughs in the great city, filings being valued at $157,695 as against $61,550 last year. Alterations for this year total over $11,000, which is $1,000 less than last year.

* * *

COST-ACCOUNTING *for the* CLAY PLANT

(*Continued from Page* 351.)

burning and emptying, the differential system will reduce the cost of figuring these costs to a minimum. It is practically impossible to get an accurate and absolute cost of setting, burning and emptying when more than one class of ware is put into a kiln. If a kiln is set entirely of one class of brick or one class of tile, the excess cost of setting and emptying the upper part of the kiln would be divided over the entire contents of the kiln. If the same kiln were reset with same class of ware on the bottom and a different class on top, it would seem at first that the ware on the bottom should be charged only at actual cost. In that case the brick or ware on the bottom of the kiln in the second case would apparently cost less than the same setting in the first case, altho they would actually cost the same. We feel that our tonnage and differential system is as nearly accurate as possible. It is based on the assumption that any ware which costs more or less than the average to manufacture by machine or hand, costs more or less to handle in every other department in the same proportion.

* * *

Freight Tariff News from Washington

The Interstate Commerce Commission handed down an opinion recently as the result of an investigation into drain-tile freight rates from Illinois points. In their syllabus in this case, which is known as I. and S. No. 835, they say:

"1. Proposed cancellation of commodity rates on drain-tile in carloads from Kankakee, and other producing points in Illinois, to destinations in Wisconsin, Minnesota, Michigan and Iowa, found to have been justified in part and orders of suspension vacated in part.



"2. Claim for reparation on shipments of drain-tile from Gilberts, Ill., to points in Wisconsin denied. Complaint dismissed."

The Commissioners have suspended until June 1st, the operation of certain items appearing in Agent E. B. Boyd's I. C. C. tariff No. A-754.

The suspended items provide for increased commodity rates on brick (except glazed or enameled), and certain other commodities, in carloads, from Buffville, and other points of origin in Kansas and Missouri, to Memphis, Tenn. The present rate on brick between said points is ten cents per one hundred pounds and the proposed class rate is twenty-three cents.

The commissioners have suspended until June 1st, the operation of a certain provision appearing in Agent A. C. Fonda's I. C. C. tariff No. 33. The suspended provision cancels a commodity rate of seven and a half cents per one hundred pounds on vitrified clay sewer-pipe, carloads, from Texarkana, Ark.-Tex., to Shreveport, La. The proposed rate is twelve cents per one hundred pounds.

* * *

Jenkins Sells Interest in Murphysboro Plant

H. H. Jenkins, secretary and treasurer of the Murphysboro (Ill.) Paving Brick Company, recently severed his connections with that concern and disposed of his interests to a syndicate. Mr. Jenkins has been associated with the Murphysboro company since 1909. While his plans for the future are not as yet formulated, it is reported that he is negotiating with President Garrison, of the Big Muddy Coal and Iron Company, of St. Louis, Mo., with a view to constructing a large brick and tile manufacturing plant on the shale property south of the Big Muddy river, at Murphysboro, which is owned by Mr. Garrison. President W. H. Hill, of the Murphysboro Paving Brick Company, whose home is in St. Louis, spent several days in Murphysboro while the big deal was consummated.

* * *

Japanese Ceramists Inspect Pottery Plants

Two Japanese, S. Shofu and K. Fujioka, son and son-in-law, respectively, of a prominent porcelain manufacturer in the Far East, arrived in East Liverpool for a visit of inspection of local porcelain and pottery manufacturing plants. Mr. Fujioka is ceramic engineer for the Shofu Porcelain Company, manufacturers of electric and chemical porcelain, located at Kyoto, Japan, which employs about four hundred people and operates twelve kilns. Mr. Shofu, who is accompanying Mr. Fujioka on his trip thru the states, is a ceramic student at Alfred University in New York state, where he is preparing himself for the assistant managership of the plant when he returns to Japan.

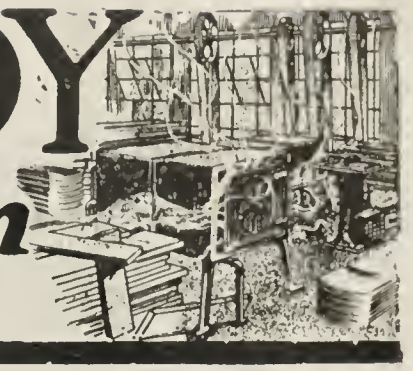
Up to this time the men have visited various concerns at Boston, Syracuse, Buffalo and other points. They will make stops at Columbus, Cleveland, Chicago and other cities in the central states and west before reaching San Francisco. Mr. Fujioka will then return to Japan with the information he has gathered here, while Mr. Shofu will return to Alfred University to continue his study of ceramics.

The More Complete Report

of the Canadian National Clay Products Association Convention, promised for this issue, has been omitted because of a lack of space. It will, however, appear in

Next Issue.

GANDY and Steam



"We have been using your belt for the past three years in our laundry as well as in our branch factories, and find it an excellent drive for any place wet or dry, and can highly recommend the same to all laundrymen and others."

Steam gives leather belting gruelling punishment—makes it so hard and stiff that it can't grip a pulley. That means loss of power as well as loss of belting. All that means loss of money. Often, steam separates the laps of leather belting and the plant shuts down until new belting is installed.

Gandy stitched cotton belting stands the gaff of steam, heat, water, gas, oil and dirt. It is proof against all these destructive forces. Gandy belting will give you the best of service, the longest of wear under the most trying conditions.

Take advantage of our service department directed by skilled engineers. They will be glad to advise you, in an entirely unbiased manner, if you can use Gandy with profit. An inquiry will not obligate you, of course.



The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

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NEW YORK PHILADELPHIA PITTSBURGH

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

The Practical Application of Pyrometers for Burning Clay Ware*

Economical plant operation is today the clayworkers's greatest problem. This means the elimination of fuel-waste, labor-waste and time-waste. These three elements of plant inefficiency probably enter into the operation of kiln burning more than any other of the several processes in the manufacture of clay ware. The modern steam-shovel and narrow-gage road have materially lessened the time and labor of digging and carrying the clay to the plant. The clay is then ground, mixed and moulded, all of which has added to its value. It is then taken to the kilns and burned. In this final and most costly operation most of the loss takes place. Burned tops, under-burned bottoms, poor color, and low percentage of "firsts" may result, and sometimes the entire kiln is a blackened mass of hard clay, which has to be painfully dug out.

These serious conditions have lead to the adoption of pyrometers by many of the most progressive clayworking plants. The pyrometer equipment consists of two distinct parts:

1. A thermo-couple which is inserted in each kiln.
2. The indicating and recording instruments on which the temperature is measured and recorded.

These thermo-couples are composed of two wires of dissimilar metals, welded together at one end. The closed end, when applied to the heat of the kiln, generates a small electric current which is read in temperature degrees on the indicating and recording pyrometers.

A number of different alloys of steel and rare elements have been used for thermo-couples. The most durable and lasting thermo-couples are composed of chemically pure platinum platinum-rhodium wire. The couple has a melting point of 3,150 deg. F., so that the usual temperature of the kilns, which rarely exceeds 2,150 deg. F., is not a very severe condition for these couples.

Thermo-couples are also composed of a nickel steel alloy, which, however, is not so suitable, as it is rapidly attacked by gases in the kilns.

Base metal thermo-couples, as they are called, also crystallize at temperatures around 1,800 deg. F., and their accuracy is affected accordingly. Protecting tubes are used, however, and great care has been taken in their selection for pyrometer services. A robust fire clay tube is first installed through the crown of the kiln, three or four feet from the apex. This tube is allowed to extend into the kiln about one inch. An adjustable flange fixes the distance, and the tube can then be fastened in with fire clay.

*Read by Jno. P. Goheen, of the Brown Instrument Company, Philadelphia, before the Canadian National Clay Products Association Annual Convention, January 23rd to 25th, Hamilton, Ont.



Head Burner Reading the Temperatures of the Various Kilns



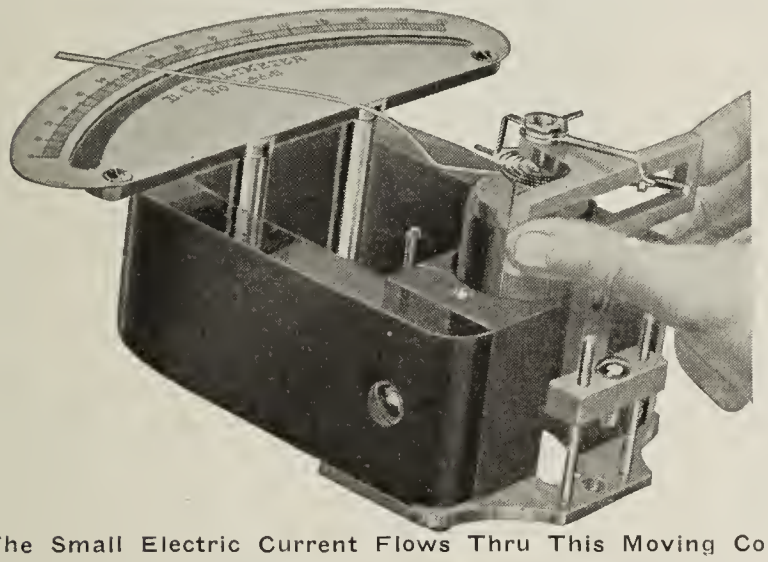
The thermo-couple, which is usually of platinum and platinum-rhodium wire, is protected from the kiln gases by an impervious porcelain tube, and is then inserted into the firebrick tube. A weatherproof cap is used to eliminate any danger of water or dust getting within the tube and causing damage.

Both the indicating and recording instruments are patterned on the same design, except that one merely shows what the temperatures are at that precise moment, while the recorder makes an actual record of these temperatures throughout the entire burn, if desired. This construction consists of a large permanent horseshoe magnet, between which is centered a moving coil, with the indicating pointer or recording arm attached.

The small electric current generated by the thermo-couple flows through this moving coil, as sketched, and disturbs the magnetic flux flowing through the poles of the magnet, this causing the pointer to deflect in proportion to this disturbance. The amount of current flow is about 20 milli-volts for a platinum platinum-rhodium thermo-couple at 3,000 deg. F. This is a very small current, but sufficient to operate the instrument. Great improvements have been made in very recent years. The instrument requires no leveling and practically any wall can be used on which to mount it.

An indicating pyrometer, which can be furnished with a switchboard, each contact point representing a kiln, should be installed near the kilns—preferably in the burner's office.

This switchboard is especially constructed so that a rotary handle makes the contact with the switch points, throwing into circuit each thermo-couple in rapid succession. To secure a minimum amount of pyrometer equipment one recording pyrometer will often suffice, equipped with a switchboard similar to that supplied with the indicator, so that any one kiln can be recorded.



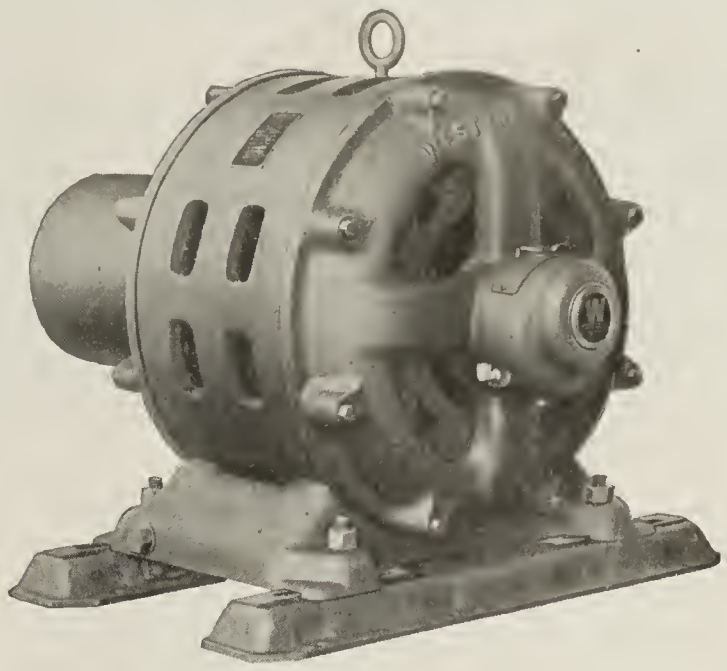
The Small Electric Current Flows Thru This Moving Coil, Causing the Pointer to Deflect

A pad of kiln record blanks is provided, and frequently a blackboard. On this blackboard a notation is made of the kilns under fire, and just what temperatures should be attained at definite periods of the burn. This serves advance notice to the firemen just how the kilns should be fired, and no excuse can be offered that they were not instructed just what to do. In addition, the temperatures are put down on the kiln-record sheet.

A recording pyrometer is also operating in the superintendent's office, so that when a record is turned in by the burner the temperatures can carefully be checked and compared. The recording pyrometer immediately shows up any laxity on the part of the burner's force, as it is only natural that some men get careless unless they know that a check is kept on them.

In first burning with a pyrometer, a recording instrument is almost necessary. It will show all the small increase and decreases in the temperature curve of the kiln. It is important at first to secure a record of the kiln which has produced the best results, and this information can be used for future guidance. This "Best Record" should show as nearly as possible ideal kiln conditions. This curve should show a gradual and steady increase of temperature. If there have been any setbacks these should, of course, be straightened out at the very next burn, if possible. A falling off of temperature means a sacrifice of all three elements of efficiency—Labor, Fuel and Time.

The principal points to keep before you in order to secure



Westinghouse Type CS Motor

**One Contract—
One Responsibility**

is what you secure in specifying

**Westinghouse
Electrical
Equipment**

We are in position to supply equipment from the steam supply to the productive machine, this includes:—

Stokers, Turbines, Generators.
Switchboards, Protective Apparatus.
Motors, Lighting Equipment, etc.

Without obligation on your part our engineers will be glad to solve your power problems.

A card to our nearest office will bring full information.

Westinghouse Electric & Mfg. Co.

East Pittsburgh, Pa.

Sales Offices in all Large American Cities





"The market's most solid truck value at the price," **is the opinion of owners in the brick and clay business in every part of the country who purchased KisselKar Trucks after a rigid investigation.**

The Kissel-built *stand-up-no-matter-what-the-work-may-be qualities,* the power resiliency of the reliable Kissel-built engine insure continuous and uninterrupted service at minimum cost per ton per mile.

Every KisselKar Truck has the same Kissel-built features and proved structural superiorities that have for the past ten years made KisselKar Trucks highly efficient in every line of business in America.

There is a KisselKar Truck built in the exact size that will meet your requirements. Send for specifications and photos.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfected worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns

Six sizes—from the 1500 lb. Delivery up. Chassis prices $950 to $3350.

KISSELKAR TRUCKS

results are as follows: Method of firing furnaces; cleaning and clinkering; drafts; best coal to use.

In ascertaining the time of firing intervals, much importance is attached to the draft, which must be regulated so that enough oxygen is supplied to the fuel bed to make good combustion. It must also carry this heat inside the kiln. Again, it must not be so strong that it exhausts the fuel bed, thus sending more heat through the kiln and up the stack than is necessary. A simple form of draft gauge attached to each kiln will furnish this information.

The grade of coal used is also of great importance and depends greatly upon plant conditions. No set rule can be applied. At some plants run of mine can be used, while at others only the best lump coal will produce good firing. There is no question, however, that the purer the coal the more heat units are secured. Your pyrometers, however, can readily prove which coal produces the most heat under working conditions, pound for pound.



Superintendent Observing a Record from One of the Recording Pyrometers

It has been proved that twice as much fuel is needed to bring a kiln back to proper temperature than if it had been properly fired. A set-back also prolongs the burning time of a kiln, necessarily increasing the cost of labor in firing and amount of fuel used. Smoothing out these wrinkles has resulted in shortening the time of burns by hours, and even **days.**

The coal consumption also varies directly with the number of hours the kiln is burning, and a large percentage of saving in fuel is secured by shortening the time of the burn. If clinkers are allowed to form the temperature drops rapidly, and a chart shows up the trouble just as surely as a clock does the time of the day.

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F. D. Harger, efficiency expert, recently made the following statement when asked for his opinion of the clay business:

"The total absence of economical methods; the utterly crude construction of even modern kilns, with their patched up fire boxes, and iron rods as grates; the guessing of the temperatures of the kiln during the burning process, often accomplished by a simple laborer, with the only means—that of his vision, and perhaps a little experience in guessing from the color of the fire within just what temperature is attained; and fearful waste of heat going up the stacks, are most appalling, and all plants should carefully consider means to remedy the conditions."

To summarize: What then are some of the practical results that can be secured by the use of pyrometers:

1—Uniform temperature can be maintained.

2—The burner can operate his kilns more carefully by having at his command a source of information as to his temperature.

3—The continuous record of the temperature carried on each kiln for the entire 24 hours each day for the entire burn, proves to the manager that the kilns have been properly fired throughout the entire period.

4—The saving of fuel by eliminating uneven firing.

SAY "I SAW IT IN BRICK AND CLAY RECORD"

5—Increasing the efficiency of the men firing the kilns.
6—Securing a greater percentage of "first quality" ware.

Of all these six reasons for using pyrometers, the most important is unquestionably the last—"The increase in per cent. of well burned ware."

This is the final result of all the several processes of manufacturing. If the percentage can be raised only five to ten per cent. the added value to the product makes a pyrometer equipment a paying investment without considering the other five reasons. This is especially true when making face brick, where delicate and uniform shades are desired; paving block, where uniform hardness and shade are required; and sewer pipe, which is easily damaged by varying kiln conditions.

There is no doubt that the increased efficiency, secured by the use of pyrometers in controlling kiln temperatures, has accomplished more than anything else in the last few years in making many plants show a profit instead of a loss.

Pyrometer manufacturers have endeavored to meet the severe conditions that are encountered in equipping clayworking plants. They must, however, look to the clayworker for co-operation to secure results. It is deeply to the interest of the clay manufacturer to have his pyrometer equipment produce the best results. A great deal depends on the amount of real study and attention given to the pyrometer equipment. A pyrometer will not burn your kilns for you, but will give you the vital information from which you can intelligently operate your kilns.

Built for Service and Durability

The K-B pulverizer is built with one idea in view—to fill the demand for a strong and efficient machine to pulverize, at a low cost, moderately hard materials.

The K-B Pulverizer Company, New York City, have had wide experience with various types of crushing machines, and for years have studied the existing models, analyzing their good and bad points. They saw the need for a pulverizer of simple, yet scientific design, giving a large capacity with low power consumption, and built of materials strong enough to endure the terrific strain to which these machines are subjected. The K-B pulverizer is the result of their efforts.

The K-B rotates in an upward direction, i. e., the hammers swing upward to meet the incoming material and smash it against the blocks. This upward direction of rotation, combined with the special shape of the breaking blocks, renders it practically impossible for any uncrushed material to pass the blocks. The finished product is then swept down and out through the screens by the onrushing hammers. All the reduction is accomplished before the pulverized material is allowed to pass over the screens. Since there is no crushing done against the screens, the wear on the screens is reduced to a minimum.

For pulverizing moderately hard materials there are several advantages which a hammer-mill possesses over other types of machinery.

1. It takes a larger piece and crushes it to a finer product than any other single machine. In some cases it eliminates the work of the preliminary crusher; in other cases it does away with additional screens and separators.

2. Both the initial and also the operating cost of a hammer-mill is less than that of other types of reduction machinery. This is because it is simpler in construction and consumes less power than other machines doing similar work.

3. The K-B pulverizer will often handle wet or damp materials, thus eliminating the cost of drying before pulverizing.

Individual Drive on Clay Plant

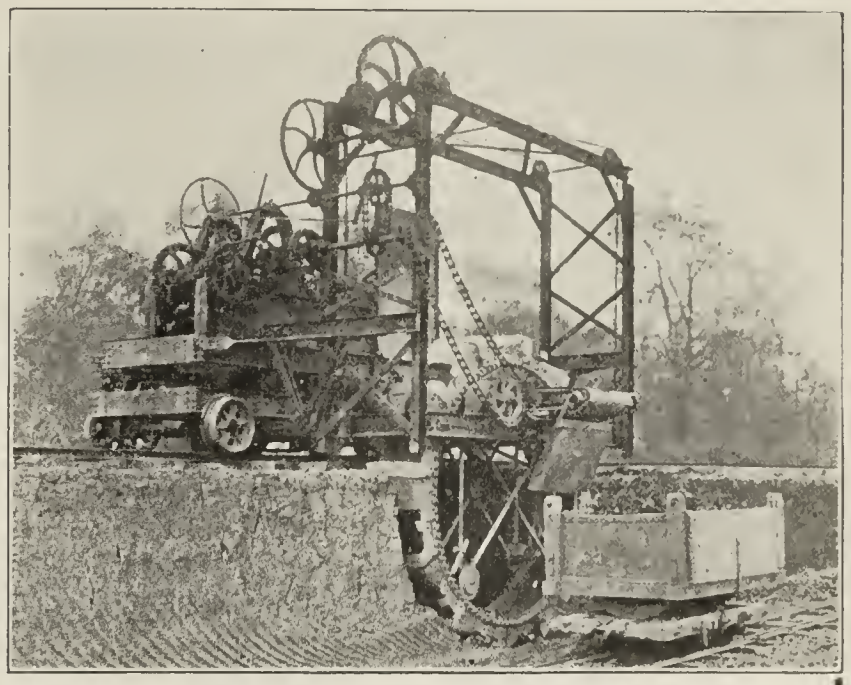
The advantages of individual motor drive for each machine cannot be summed up in a short article, but the idea is worthy nevertheless of considerable thought and study.

The chief advantage, of course, is the flexibility of the system. Each machine can be operated alone without running any of the balance of the machinery line. The saving in power is evident, as there is no waste effort or expenditure of power.

The friction loss, due to line and counter-shaft bearings, belt slippage, etc., is entirely eliminated, and only sufficient current is used to operate the producing unit.

The Buckeye Delivers the Clay to the Cars Either in the Pit—or On the Top of the Clay Bank

which do you prefer?



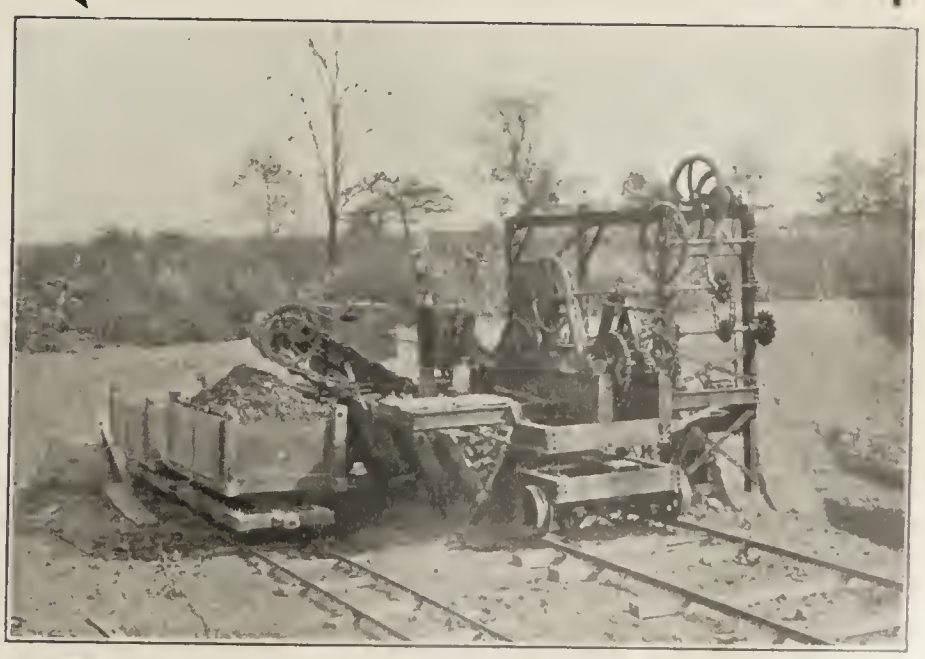
The Buckeye Traction Digger

is a flexible, economical, hard, consistent digger. It is operated cheaply, has a low upkeep cost.

It can be operated by either electric or gasoline power. Describe your conditions fully, and state daily yardage desired. We will advise frankly whether you can profitably use our Digger. If you can, we will make a complete recommendation.

Dozens of clay plants use it.
It may suit your conditions perfectly.

THE BUCKEYE TRACTION DITCHER COMPANY
FINDLAY OHIO



SAY, I SAW IT IN BRICK AND CLAY RECORD

The Veritas Firing System

A new and wonderful system for producing better results in your burning.

By measuring the shrinkage of the Veritas Clay rings in the Veritas instrument, after withdrawing them from the kiln, you obtain an absolute check on your burning procedure.

You Standardize and Systematize Your Firing

In the United States the System is used by over 150 plants, firing off over 1,000 kilns each week.

Altho the System is comparatively new in this country, it has already been adopted and used with great success by many representative firms.

Inquire of The Hydraulic Press Brick Co., Cleveland, Ohio, The Dover Fire Brick Co., Cleveland, Ohio, and many others. We will furnish a list.

We guarantee our System to make time, fuel, and labor-savings while producing uniformly better ware.

The Veritas Firing System Co.

Trenton, N. J.

And Herbert Forester, Box 37, Cleveland, Ohio

The Springfield Paving Brick Company are equipped thruout with individual Westinghouse drive. The following letter is descriptive of the motors used and the machine served:

Your letter of the 23rd at hand and contents noted. In reply we give you a fairly complete description of motors, etc., in use at our plant.

We have 19 electric motors, rated from ¼ H. P. to 150 H. P. They operate as follows:

One 37 H. P. (Intermittent) Induction Motor (closed type) to operate boom, and one 52 H. P. (Intermittent) Induction Motor to operate hoist. These two motors are connected with necessary resistance, clapper board, etc. The ¾-yard dipper is discharged by a solenoid magnet. Motors, etc., are so arranged that the shovel is now a 1-man operation. With the old style steam apparatus it required 3 men to operate shovel.

One 10 H. P. Motor, to operate 6-inch centrifugal pump, to pump water out of shale hole. It has automatic start and stop attached.

One Intermittent 35 H. P. Motor, to operate our shale hoist, from pit to the dry pans. This hoist is equipped with automatic brake and overwinding device. Speed of shale car loaded is 500 ft per minute; three ton car.

Two 75 H. P. Induction Motors, to operate our two 9-ft. dry pans. One 40 H. P. Induction Motor, to operate our 7-ft. dry pan. These three motors are reversible, which makes them very efficient.

One 20 H. P. Induction Motor, to operate our ground shale elevator; one 15 H. P. Induction Motor, to operate ground shale drag to pug mill; one 5 H. P. Induction Motor, to operate green brick drag, to carry green rejected brick back to dry pans.

One 60 H. P. Induction Motor, to operate Chambers 17-ft. pug mill, gear connected; one 150 H. P. Induction Motor, to operate Chambers Bros. brick machine.

One 5 H. P. Induction Motor, to operate Blacksmith and Machine Shop, and one ¼ H. P. Motor connected to blower for Blacksmith Forge.

One 10 H. P. Induction Motor, to operate fire and supply pump. This pump has three high pressure cylinders. Pump works automatically. If water supply tank lowers three inches the pump starts up, and shuts off when the water reaches a proper level in supply tank.

One 40 H. P. Induction Motor, to operate 76-inch Sirocco Fan, for waste heat.

One 15 H. P. Induction Motor, to operate coal hoist. This motor pulls the loaded coal car (3 ton) up an incline 20 per cent. pitch, 150 ft. long. From this point the steel elevated track runs level about 10 ft. above the top of kilns. Car can be started or stopped at any point of the track by simply pushing a button, or can be reversed same way. Car is attached to wire rope (endless) at back and front end. After car has been pulled to point where we want coal discharged, the operator pushes a button and car starts back empty to loading point. With this outfit one man hoists all the coal necessary to burn 60,000 10-pound paving block a day.

One 7½ H. P. 125 volt Motor, to operate transfer car, to transfer blocks from dryer to setters in kilns. Transfer car has three tracks on it, takes two loaded cars 800 paving block at a trip. Operated by trolley line. Two men can easily deliver 75,000 block in nine hours. Current to operate transfer car is made by a generator set consisting of one direct current generator 7½ H. P. Operated by one 12 H. P. Induction Motor this furnishes the 125 volt current, as we did not want to use 400 volts on trolley line running thru yard, dryer, etc.

One 3 H. P. Induction Motor, to operate shale car dump. Our shale cars are so constructed that they only dump on one side. This motor works the hoist machine to tip car up on side so it

Our factory is lighted by 500 Watt lamps inside buildings. Around and between kilns with 60 Watt Mazda lamps. Have been using Electric Power for over two years. Like it. No trouble if motor bearings are looked after and motors properly oiled. Yours truly,

Springfield Paving Brick Co. (Signed) T. J. Armstrong Pres.

* * *

"Get-together Meeting"

The Hill Clutch Company, Cleveland, Ohio, large manufacturers of power transmission machinery, held another of their regular get-together meetings February 6th for all of the officials, superintendents and department heads. About fifty attended the meeting. All were guests of the company at supper served in the company restaurant. After an address by H. J. Smith, chief engineer and works manager, on the objects and aims of these meetings, the general discussion followed on shop production, efficiency, etc. Interesting papers were read by F. W. Sebelin, superintendent, on "Shop Efficiency and Scientific Management;" H. Switzer, foundry superintendent, on "Betterment of Foundry Production," and H. F. Corrigan, sales department, on "Service as Viewed Through the Customer's Eye."

* * *

The Taylor Instrument Companies of Rochester, N. Y., have recently placed on indefinite loan with the Department of Ceramic Engineering, University of Illinois, Urbana, Ill., one of their latest types of Rare Metal LeChatelier pyrometer outfits for the use of the students in their laboratory work in the ceramic courses.



The EDITOR'S CORNER

WHILE the nation's business men were signing checks for the payment of income taxes, state insurance taxes, county taxes, township and corporation taxes, Congress playfully tacked another law onto the federal statutes which will call for further check signing. This last mentioned act is known as the Excess Profits Tax, the proceeds of which are to be used "to provide increased revenue to defray the expenses of the increased appropriations for the Army and Navy and the extensions of fortifications, and for other purposes."

"Brick and Clay Record" knows that no clay products manufacturer will agree with it in condemning the purpose of this bill, but we believe that every business man will endorse the protest that it is perniciously class legislation, inasmuch as the net income of private individuals for services rendered is not included in the act. Prominent among such private individuals may be classed the various professional men.

The House passed the bill imposing the tax (which consists of eight per cent. of the net profits in excess of eight per cent. of the actual capital invested of corporations, partnerships, and so forth, whose net incomes are in excess of $5,000 per annum) upon corporations and partnerships only, making agricultural and professional interests exempt. The committee of the Senate, however, in reporting this bill, did not exempt agricultural interests.

"Brick and Clay Record" understands that this bill has been passed and that, therefore, any protest would be of no avail. The passing of this bill, however, brings home in a very forceful manner the fact that more co-operation is needed between business men to guard against unfair and discriminative legislation such as the Excess Profits Tax is.

* * *

An Opportunity That Should Not Be Neglected

A CALL has been issued by the president and secretary of the Hollow Building Tile Manufacturers' Association of America to meet in New York City on March 8 for the purpose of organizing for more active work.

Thru an unfortunate arrangement of circumstances this organization has not been able to do as effective work during the past six months or more, as might have been desired by the manufacturers of hollow building tile. The meeting, therefore, which has been announced presents an opportunity that should not be allowed to pass without being made use of. Every hollow tile manufacturer in the United States ought to consider it a duty to rally to this call and go to New York, leaving all personal differences and dull axes at home. Something worth while is certain to be accomplished if the producers of this admirable material will get together in the eastern metropolis with no other thought in mind than the good of their branch of the clayworking industry.

* * *

Need for a National Campaign Advertising Paving Brick

ONE of the biggest advantages claimed for a brick pavement is that it is the cheapest form of permanent road covering that can be obtained, considering the term of first-class service which it gives. Many ways and means of getting this fact before city, township, county and state officials and engineers, as well as the taxpayer, have been tried and suggested, but of all these methods, that which calls for an advertising campaign of national proportions is the most progressive and holds the biggest promise of results.

The president of the National Paving Brick Manufacturers Association, C. C. Blair, as well as the secretary and assistant secretary have urged the adoption of such a plan, but owing to the size of the appropriation required to launch such a campaign, the plan has thus far not attained to realization. It takes money to do advertising properly and effectively. No business man of sound judgment expects to get something for nothing. The theory that it has been possible to do this has been exploded long ago.

Coming as a sharp reminder that the national advertising campaign for paving brick should not be forgotten, the following significant statement appeared in a recent issue of a Chicago (Ill.) daily newspaper under the heading "Cook County Gets 112 Miles of New Roads":

"Specifications for much of the proposed pavement have not been completed and the type of surface to be used is yet to be determined by the county board. Thus far, only cement concrete and bituminous concrete has been considered. There has been no thought of brick, and probably this expensive kind of pavement will not be used."

Looks like another case of ignorance as to the true merits and economy of a brick road on the part of the public. If the people were thoroly familiar with the facts as to just how cheap a brick road is, they would protest against the wasting of their money in the use of materials that are lower than brick in first cost but much higher in last cost. A blanket of knowledge in the form of advertising to cover the whole country is, we believe, one of the best weapons with which to combat the harmful effects of such lack of information as is revealed in the above newspaper article.

* * *

A "Tip" for Equipment Manufacturers

"IT WOULD BE of decided value," writes a Middle West brickmaker, "for some blower company to develop a small portable blower to increase the draft of kilns at the start during the watersmoking period. This should materially increase the efficiency of the kiln by shortening the time of burning. We understand some companies have been using this sort of apparatus with considerable success, and would be pleased to have any information you may have on this subject."

This is a chance for some equipment manufacturer (who may have already developed such a machine) to get in on the ground floor with a device that is destined to enjoy a large demand if the right kind of a machine is offered. This statement is based upon what we believe is a good idea.

In this connection, if any of our readers have used or are using a device such as is mentioned in the above quotation, the Editor would appreciate their writing him, giving whatever detail information is possible. If the idea of using a small portable blower for expediting the burning of kilns has been tried with success, the industry ought to know it, don't you think so?

The BEST REPUTA-

Hidden from the Hurrying Crowds and Unseen by the Have Been in Service for Nearly Forty Years, Establish-

THE BEST REPUTATION in Chicago is possessed by her old brick sewers. Other cities may boast boulevards as beautiful, buildings as handsome, harbors as magnificent, water as good to drink—but no city in the world has such an enormous sewer system. Every other noted city in the world has, at some period in its development, far outgrown its sewers. Chicago never has. Its sewers today comprise twenty-three hundred miles of trunk lines alone, a hundred and ten thousand catch basins, ninety thousand manholes; and the great majority of its three hundred and fifty thousand human abodes, clear to the outskirts, are connected to the system.

TUNNELS SUBJECTED TO UNEXPECTED PRESSURE

Altho the old part of the city—say the area bounded by the River on the north and west, by the Lake on the east and by Congress street on the south—has grown to be one of the most thickly populated spots on earth, its original old brick sewers, laid over sixty years ago, have always been equal to the occasion. As the population of this small square doubled and redoubled, the streams of sewage flowing from it increased from little rills along the floors of the brick tunnels to swollen streams that completely filled them. Buildings piled up, basements went down, private water supplies and power plants developed, steam ejectors came into use so that the full streams rose high in the manholes under pressure and became spouting torrents. Still the old brick sewers continued to deliver the goods.

An engineering structure of any sort that works thus for years without mishap or interruption under such a continuous overload deserves study. The



Intersection of an Eight-foot and a Six-foot Sewer at Twenty-second and Troy Streets, Built of Hard-Burned Brick in 1882. The Sharp Edges of the Brick Indicate Perfect Soundness After Thirty-five Years

TION *in* CHICAGO

Occupants of the Quiet Home, Humble Sewer Brick ing a Record That is a Prominent Object of Civic Pride

smaller sewers in Chicago are, of course, built of vitrified salt glazed clay pipe, as in any other city. Those of larger diameter are of hard-burned brick, shaped out of Chicago's own stiff blue clay. They are plain circular sections, one brick thick up to a diameter of two and one-half feet, two brick thick up to a diameter of six feet, three brick thick up to ten feet, and four brick thick over ten feet.

BRICK PROTECTS CEMENT MORTAR FROM SEWAGE

The brick were all laid in a mortar of cement and sand. Geologists have determined that, given the opportunity of continuous close contact, a thousand pounds of water will dissolve a pound of limestone; and we know that lime forms the principal bulk of cement. But just as ice will melt from a smooth road surface long before it thaws out of a deep crack in frozen ground, so we find by observation after a third of a century that the close edges of the brick have prevented the sewage from dissolving the mortar. It is to the hard-burned brick itself then, that we must look for an explanation of the splendid long record of Chicago's sewers.

A brick, to begin with, is made from what might be considered nature's own finished product—clay. Clay is much more than just mud. It is what remains after all the chemical forces of nature have disintegrated the hard rocks out of which continents are first made. It is what remains after rains and rivers have washed away from it all the soluble substances and left it in a refined state by itself. Out of this naturally chosen material, the brickmaker must choose the best in order to meet the rigid requirements of sewer construction. After carefully grinding his material and kneading it with water, he squeezes it under



A Point In the Nine-foot Brick Sewer In Fortieth Avenue, W here a Manhole and Drains from Electric Conduits All Come In Together. Neither Sewage Below Nor Fungus Above Have Had the Slightest Effect on the Hard-burned Brick



A Small Lateral Entering the Twenty-second Street Sewer. The Lateral Has Been Improperly Daubed With Cement, Which, Lacking the Close Support and Protection of the Brick, Has Begun to Bulge and Disintegrate from the Effects of the Sewage. The Surrounding Brick Masonry Has Remained Unaffected Since 1881

tremendous pressure thru a die—not merely to shape it, but to give it the extreme compactness and density so necessary in this kind of work. The burning of brick is a great deal more than mere baking. It is a refinement by fire, a test, a proof of quality. The burning destroys all perishable substances, discovers all errors, shows up all defects so that when a city buys first-class, hard-burned sewer-brick it buys what neither chemical action, flowing water, nor fire can alter, something already mixed, cured and inspected beyond the possibility of mistake.

CHICAGO INSPECTOR CONDEMNS CONCRETE SEWER

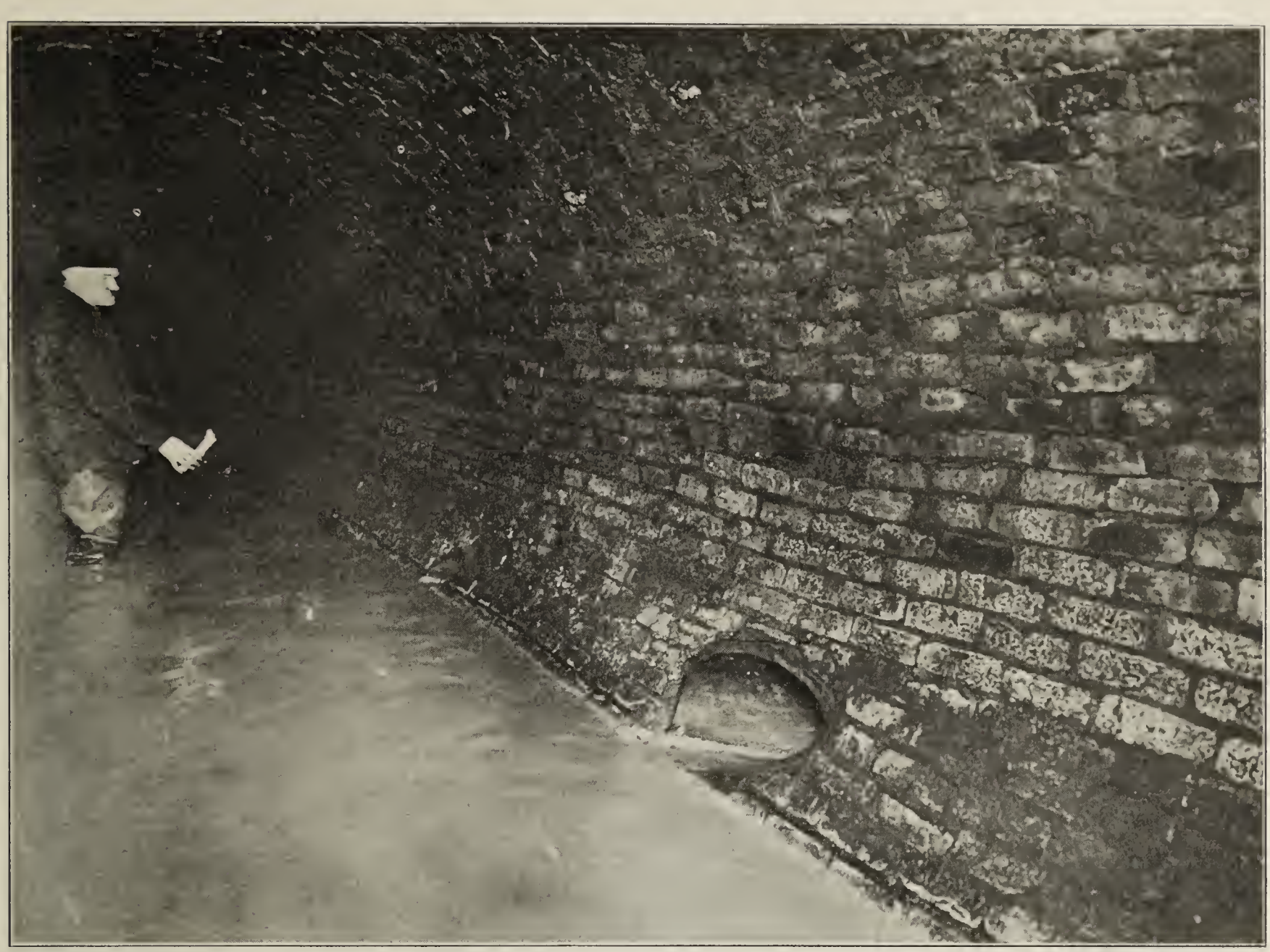
If Chicago had been content never to experiment with any other sewer materials, she might not appreciate how exceptionally sound her old brick sewers have been; but her experience with other things shows by contrast how much she owes to the integrity of hard-burned brick.

A few years ago the dismantling of the old Transit House in the Stock Yards district exposed an old sewer made of concrete. It was a small affair, but investigation showed that the foul gases of sewage and the acids that are naturally generated had completely rotted the pipe walls. For years sewage had been leaking all over the neighborhood, blackening the soil and polluting the atmosphere. F. M. Finsthwaite, Chicago's chief sewer-pipe inspector, was asked to report on it. This is his report:

> "In order to answer your inquiries about the old concrete sewer recently exposed at the site of the Transit House, Stock Yards district, in this city, I have inspected the site and find that the bare statement that the sewer has lasted forty years is entirely misleading. Altho the bulk of the original material is still in place, it has apparently been for many years in a very disintegrated and unsanitary condition, carrying very little sewage and containing much deposited filth. The pipe, which seems to have been originally a good dense mixture of cement, sand and gravel, is now in such a condition that both the inner and the outer surfaces of the pipe can be scratched off with the fingers so as to loosen the gravel. The entire section is saturated with, and softened by, sewage, and all the pipes exposed are cracked longitudinally and across, allowing the sewage to soak into the surrounding ground.
>
> "In my opinion the sanitary condition of the neighborhood would have been improved if this sewer had not been allowed to remain so long, but had been rebuilt years ago.
>
> (Signed) F. M. Finsthwaite,
> Chief Sewer Pipe Inspector of City of Chicago."

GASES DESTROY EXPERIMENTAL CONCRETE SEWER

About seven years ago, Chicago's Drainage Board tried the experiment of building a large sewer—twelve



Showing a Properly Installed Branch, Perfect After a Third of a Century's Service. Tapping a Brick Sewer Can be Done Without Damage to the Surrounding Brick-work. Tapping a Concrete Sewer Costs Twice as Much and When Done, the Surrounding Concrete Can Never be Made Whole Again

feet in diameter—out of Portland cement, sand and gravel. This was in Western avenue. In seven years it had been almost totally destroyed. An article in "Engineering News" for September 14, 1916, describes in detail how the disintegration of the solid concrete has been caused by sewer gas; how, while that part of the masonry protected by the water is still sound, that exposed to sewer gas is converted to a crumbling, pasty mass; how chemical analyses of the sewer gas, the good sound concrete and the destroyed concrete disclosed the interchange of sulphurous chemicals from the gas to the cement, with the resulting destruction. So obviously is this destruction due to sewer gas that the city has lately had several ventilator shafts constructed above the sewer in hope of preventing further action. The same curious rotting of once-good concrete is to be observed in the early stages along the water's edge in the Cottage Grove avenue sewer and in many other places in Chicago. The following chemical analysis and explanation relating to the Western avenue sewer explains them all:

Sample.	Sound Concrete.	Decomposing Concrete.
Moisture	2.13%	4.12%
Loss on Ignition	19.81%	20.21%
Silica (SiO_2)	36.38%	30.75%
Iron (Fe_2O_3)	3.53%	1.32%
Alumnia (Al_2O_3)	9.04%	6.40%
Lime (CaO)	23.36%	17.30%
Magnesia (MgO)	3.38%	3.49%
Sulphur (SO_3)	2.37%	16.62%
	100.00%	100.21%

Sulphur (SO_3)

In sound concrete.....2.37%
In decomposing concrete....16.62%
In 200 mesh material from decomposing concrete..46.30%
In ¼-inch material from decomposing concrete....11.44%

	Sound Concrete.	Disintegrating Concrete.
Water soluble	5.12%	28.96%

AN EXPLANATION OF THE ANALYSIS

First, *moisture:* This is simply the proportion of water by weight which the chemist was able to dry out of the two samples before he started to work on them. Naturally, the decomposed concrete had soaked up more water than the sound concrete.

The second item, *loss on ignition,* simply means the proportion by weight which can be burned up by heating the samples to a red heat. Here again we should expect that the decomposed concrete, having soaked up more organic matter out of the sewage, should contain more of it to burn away.

The third item, *silica,* is the chemist's term for the sand and gravel of the harder variety. The proportionate decrease is due to the addition of greater quantities of other materials. The same may apply to the iron rust and aluminum which

appear to have decreased. The calcium has materially decreased, having been changed by the sewer gas into soluble calcium sulphate and washed away.

Coming now to the last and most important item of all, the SO_3. It must be understood that this is simply sulphuric acid with water taken out. In other words, the chemist has handled the water separately, altho in the sewer, of course, the water is presumably still with the acid in the form of H_2SO_4. The most noticeable feature of the above comparison is that the concrete, from some source or other, has absorbed about six times its original content of SO_3. A sample of the atmosphere taken just under the sewer arch and about one hundred and fifty feet from the mouth by displacing distilled water from a gallon jar, showed 2.45 milligrams of sulphur per liter of air upon analysis by Mariner and Hoskins of Chicago. This is equivalent to 0.17 per cent. by volume in the form of sulphur dioxide or hydrogen sulphide. One part in a million of hydrogen sulphide is enough to be plainly evident to the senses, and 0.17 per cent. is sufficient to be very active chemically. In the form of sulphur dioxide it might be even more corrosive to concrete.

PLAIN CASE OF NATURAL CHEMICAL ACTION

The case seems then as clear as we could make it without actually seeing the chemical action take place. We have first a concrete sewer acceptable to the city engineers and sound on its exterior against weather and frost action, after seven years' service. Those parts thoroly disintegrated, and the materials, as they now exist, could not possibly be used structurally to hold their own weight while forms were being removed from them. These disintegrated parts contain an excessive amount of sulphur which cannot be found in the other parts. The sulphate crystals apparent to the magnifying glass and the analyses of the chemists indicate that this excessive sulphur has been added chemically. The sewer gases present are the only discovered sources of this sulphur. Other similar investigated cases indicate a similar chemical action. This, then, is not a matter of a blameworthy builder, nor a mystery, but a plain case of natural chemical action.

PICK FAILS TO DENT BRICK SEWER

But brick sewers have also been investigated in Chicago. When the bulkheads surrounding the excavation for the Marshall Field building caved in and let the street down with water pipes, gas pipes and sewers all together, the superintendent of sewers, in order to satisfy everybody that the fault was with the bulkhead and not with the sewer, handed a pick to the investigating committee and asked them to take just one brick out of the sewer with it. It could not be done. The brick were too hard. Nothing but steel gads and sledges could remove them. Again, when the Belmont avenue three-ring brick sewer was lowered to pass under the Chicago, Milwaukee and St. Paul railroad tracks, picks could not break into it. Gads and sledges finally made a hole in it, and every brick removed was found to be as good as the day it was burned.



Steel Gads, Siedge Hammers, Chisels and Much Hard Labor Were Required to Break Into This Old Sewer in Belmont Avenue, to Make Way for Railroad Tracks. Every Brick Was as Sound as the Day It Was Burned

It takes but a few short journeys underground in Chicago, with rubber boots, flash-lamp and camera, to prove that the deterioration of a hard-burned brick sewer is not one per cent. in a hundred years; that brick is far superior to any other material used for the purpose and is, in fact, permanent. This is worth while for the taxpayers of Chicago to know. It is greatly to be regretted that the people, so much of whose money is spent for sewers (a million and a half a year) cannot see them. If they could once view with their own eyes the great underground labyrinth upon which they depend each hour in the day for health and comfort, the "best reputation" of our hard-burned sewer-brick would be appreciated, and no other material would ever be used for Chicago sewers.

* * *

Fallston Company Plans Immense Output

Having been practically oversold all last year, and with present prices averaging three dollars per thousand higher than those prevailing at this time last year, the Fallston Fire Clay Company, of which T. P. Cuthbert is manager, starts a new building season with a heavy volume of business on its books.

In a statement regarding the outlook for his company, Mr. Cuthbert said recently:

"The season of the year considered, we have a good volume of business on our books and consider the outlook very good, provided there are no unexpected developments in connection with the 'big scrap.' The Fallston company has been in the hands of its present management for four years and during this time the capacity of the plant has increased from about 25,000 to nearly 90,000 brick daily. We have added what you might call a twin plant to the old one in the past fourteen months, and now have one of the most improved and best arranged plants in the country, with a production far in excess of any other exclusive manufacturer of flashed iron-spot brick.

"We are now crowding production to the very limit and will continue to do so thruout the winter, regardless of increased costs, in anticipation of the spring demand.

"The new rough-textured face brick which we brought out last spring caught the market at once, and the demand from all sections has been very great. We have only recently caught up with orders for this brick. While the demand for Fallston brick has grown very rapidly during the past three years, we believe that our increased production will enable us to keep pace with the increasing demand in the future. It is our expectation to make not less than 28,000,000 brick during the next twelve months.

"L. B. Rainey, a graduate of the Ohio State University and a thoroly experienced face brick man, is our superintendent and was recently taken into our firm. The company is still being operated under the same management. We have facilities for stocking under cover about 8,000,000 brick and our switches have been extended sufficiently to enable us to load twenty cars of brick daily."

* * *

J. L. Buckley Resigns from the Hydraulic

A development of great interest came to light recently at Des Moines, Ia., when the Capital Clay Company was organized with a capital stock of $300,000 and J. L. Buckley announced as its secretary, treasurer, and general manager. Mr. Buckley who is now manager of the Davenport (Ia.) branch of the Hydraulic-Press Brick Company, will resign his position with that company on March 1, and will be succeeded by I. W. Irwin, present manager of the Minneapolis (Minn.) office of the Hydraulic company.

The new concern with which Mr. Buckley is associated will start with a paid in capital of $225,000, and has been organized for the purpose of taking over the large paving brick plant at Des Moines, formerly owned by the Barber Asphalt Paving Company. The manufacture of paving brick at the newly acquired plant, which is among the largest of its kind in the Central West, will be discontinued and the plant divided into two sections, one of which will be devoted to the manufacture of building brick and the other to hollow building tile or fireproofing. New machinery has been ordered which will complete the division of the plant into the two separate units.

All the parties interested in the new enterprise are residents of Davenport. James W. Bollinger of that city is president of the company, Oswald Becker, vice president, and Mr. Buckley, secretary, treasurer and general manager.

* * *

Another Recruit Joins the Benedicts

"My Word!" exclaimed Day. Then his eye traveled from rolling pin to washboard and other articles suggestive of disquieting marital possibilities. "My Word!"

O. L. Day is not one addicted to the use of expletives but here surely was strong provocation. His desk in the Harbison-Walker Company's offices in the Farmers' Bank building, Pittsburgh, Pa., which he had left generously cluttered with blue prints and other articles usually found amongst an engineer's effects, had taken on over night the aspect of a bishop's throne, except that in place of the sacerdotal robes and staff, there was a collection of things running from tin pans to treatises on the care of the house cat, the whole covered with yards of flaming red and purple bunting and streamers.

His fellow-workers in the office confessed they had learned Mr. Day was to be married to Miss Irene Bridenthal and that they had planned the little surprise. Mr. Day has been with the company for five years and is held in high regard by his assistants. After a wedding trip to Cleveland, Mr. and Mrs. Day will be "at home" in Dormont.

* * *

Dwelling Demand Invades the Jersey Side

Northern New Jersey which includes Newark, Jersey City, Paterson, Passaic and other suburban communities, is threatened with a dwelling house famine this year. Advances in rents in the apartment houses in New York and Brooklyn are driving scores of families into the commuting zone on the west side of the Hudson River. Real estate agents in all of these localities say that never before have they had so many inquiries for apartments and whole houses as they are receiving thus early in the season and the result is that rents are advancing, going up from five to fifteen dollars a month, depending upon the character of the property wanted and its location with reference to transportation facilities to and from New York. Already they have discovered a scarcity of such structures and are predicting building operations which will exceed anything known in recent years.

While not all of these new buildings will be of brick, most of them will contain liberal quantities of burned clay in one form or another. The hollow-tile house costs but little more than timber and is fireproof. Because of this most builders are specifying that hollow-tile shall be used in their construction work. Few definite plans have thus far been made, but with the demand

for dwellings as strong as it now is, the season will open with a degree of activity hitherto unknown. This applies to all sections alike within the commuting zone. In addition to this prospect the projection of factory buildings promises to be an important feature of the work this season. Probably not all of the projects will be carried out, but it would appear that a sufficient number will be erected to locate increased manufacturing facilities and bring a great many more residents to the sections above mentioned which will result in a tendency to place the price of dwellings above the means of only those blessed with fairly liberal salaries.

The main point to be considered is that a great many houses will be needed and must be built to accommodate this certain influx of population.

Brick Road Forces Railway To Its Knees

How a brick-paved highway can endanger the franchise of a belligerant railway company, which hitherto has held the lead in a fight with the residents of two cities, is demonstrated by the results being obtained by the people of Canton and Massillon, Ohio. The now virtually-completed road between these two cities, paved with brick, is answering the transportation problem for the residents of these two cities, to the extent that several hundred vehicles an hour pass over the eight-mile strip. Furthermore, a motor-bus line has been established. This means of transportation, together with the fact that the fare is five cents cheaper than by the interurban cars of the Northern Ohio Traction and Light Company, is seen the danger of loss of its franchise by the railway company.

Up to the time the brick road was completed, the N. O. T. has held the winning hand in the game, in that it could discontinue its service, raise the rate of fare, or cut down its service. Recently, none of these things have come to pass. The motor-bus line takes care of that. Moreover, during the severe winter weather just past, the interurban cars did not run between Massillon and Canton for several days and traffic was dependent entirely upon the buses.

Illinois Brick Company Shows Big Gains

During the year ending December 31, 1916, the Illinois Brick Company of Chicago enjoyed greater prosperity than it has for several years past. There was added to the surplus account more than $8,819, while earnings were more than fourteen per cent. on the capital stock, against 6.87 per cent. the previous year. Cash holdings of the company have increased substantially and accounts payable have been almost cut in half. Realty holdings are greater, while the company has a larger stock of materials on hand, as revealed by the inventories account. President William Schlake says the company is now free from debt, with the exception of current obligations incident to any business. He adds that the last year has been entirely free from labor disturbances and that the relations of his company with labor are such that there is nothing to fear from that source for another two years.

The company's report for 1916 compares with that of the previous year as follows:

	1916	1915
Net profits	$674,542	$530,643
Dividends	376,000	282,000
Depreciation and taxes	289,723	233,611
Surplus for year	$ 8,819	$ 15,032
Total surplus	389,544	380,725

Rogers M. Combs Celebrates Fiftieth Year

Rogers M. Combs, vice president and salesmanager of the Thomas Moulding Brick Company, Chicago, Ill., called his "tribe" of twenty salesmen together on January 30 to celebrate the attainment of the fiftieth milestone on the path of life. The "birthday party" was a complete surprise to all but the venerable one himself, the men invited accepting the invitation to their chief's home for a big feed as just another of his many co-operative plans which have served to weave their ideals and their work into an harmonious tapestry that is proving invulnerable to the usual diseases of the face-brick business. Attractive menus, containing a photograph of Mr. Combs, served as placards at the dinner, and after all but the china had disappeared, the "pot was kept boiling" by preconceived stunts designed to increase the evening's enjoyment.

Important Hollow Tile Meeting Scheduled

The period from March 5 to 10, at which time the National Brick Manufacturers' Association will meet in annual session, is felt to be an opportune time to hold a meeting of the Hollow Building Tile Manufacturers' Association of America, and the officers have, therefore, called a meeting to be held in one of the convention halls of the McAlpin Hotel, March 8.

The hollow tile association has held no meeting since last summer, and it is planned to try to reorganize for more active work. It is felt that this branch of the clay-working industry could not fail to be greatly benefited by a live and active association, and all hollow tile manufacturers who can arrange to do so are urged to attend this meeting in New York on March 8.

Wants Hollow Brick Agency

A Cincinnati dealer is desirous of knowing if there is a hollow brick manufacturer located near the Queen City who is not represented at that point. The Editor has promised to assist this dealer in getting in touch with some one in the desired location who can give him a line such as he wants, and takes this opportunity of calling the matter to our readers. Please write the Editor if you have anything of interest to the above party.

Fire Damages Mason City (Ia.) Plant

Further information received regarding the big fire that swept the No. 2 plant of the American Brick and Tile Company at Mason City, Ia., indicates that a loss of at least $75,000 has been suffered. The plant, which was just recently electrically equipped thruout and considered one of the best in the Middle West, was gutted by the flames and a large amount of the machinery ruined. The fire is thought to have started in the boiler room, as it was discovered at that point about 6:30 o'clock in the evening. It was fully half a mile to the nearest water hydrant so that a half hour elapsed before a line of hose could be placed into service, and it was another hour before the water pressure was sufficiently great to be of any assistance in stopping the blaze. By ten o'clock the flames had damaged the entire plant. with the exception of the boiler room. Fortunately, no other buildings were near enough to the factory to be endangered by the flying firebrands, which were carried high in the air by the stiff wind that prevailed at the time. No accurate statement of the damage can be made until investigations now under way have been completed.

NEW YORK'S TRIO
of attractions for
CLAY PRODUCTS MANUFACTURERS

National Complete Building Exposition, American Ceramic Society Meeting and National Brick Manufacturers Association Convention Promise Eventful Week from March 5 to 11

ON THE EVE of a three-fold gathering that will attract many clay products manufacturers to America's biggest city, from March 5 to 11, everything is in readiness for a big annual exchange of greetings and the renewing of old friendships among those who have chosen as their life's occupation the production of the best-of-all building materials.

VISITORS WILL SEE MUCH OF INTEREST AT SHOW

Of course, the National Complete Building Exposition, to be held in the Grand Central Palace between the above mentioned dates, will be of great interest to every clayworker who drops into New York for the six days during which the show will be open. When the nation's brickmakers inspect this wonderful exposition of building materials, they will find there considerable to attract their attention, particularly the exhibits of the lumber manufacturers and dealers, as well as those who manufacture and handle cement. Brick, hollow building tile and other burned clay wares used in the erection of buildings will also have a prominent place and the clayworker who visits the show will not be pained nor humiliated by the absence of any demonstration in behalf of his material, thanks to the good business judgment of a few of the nation's clay products manufacturers.

While the program covering the National Brick Manufacturers' Association convention which will be held from March 5 to 10 at the McAlpin Hotel, is not available at this writing—and, therefore, nothing can be said concerning it—the American Ceramic Society program is at hand, containing much that is of interest to the ceramist.

OFFICIAL ANNOUNCEMENT

The nineteenth annual meeting of the American Ceramic Society will take place in New York City on Monday, March 5, 1917, continuing thru the next day, and so far into Wednesday, the seventh, as may be necessary to complete the program. The following day, Thursday, March 8, will be devoted to visitation of the plants or other places of interest, in one body or in several detached groups, as the convenience of the members may decide.

The meeting will be conducted in one session only, with every effort to make each session one of maximum effectiveness for the transaction of the society's business.

HOTEL HEADQUARTERS

The Astor Hotel, 44th Street and Broadway, one of the most noted hostelries of the great city, has been selected as headquarters. The meetings will be conducted in its beautiful "College Room" on the southeast corner of the top floor, clear above the noise of traffic from the street, and with every physical attribute for perfect service. Registration will be in the ante room adjoining, and clerks will be in constant attendance to give attention to business matters.

REGISTRATION

The secretary's office will be kept open from 9 a. m. Monday until the close of the afternoon session, and similarly on each succeeding day. The clerks in attendance will be prepared to furnish programs, take fees and dues, issue badges and receipts, make booking for Thursday's trips, take orders for the society's literature, and so forth.

Visitors will this year, for the first time, be given a formal status at the society's meetings, by issuing to them a visitor's badge, upon registration and payment of a nominal fee.

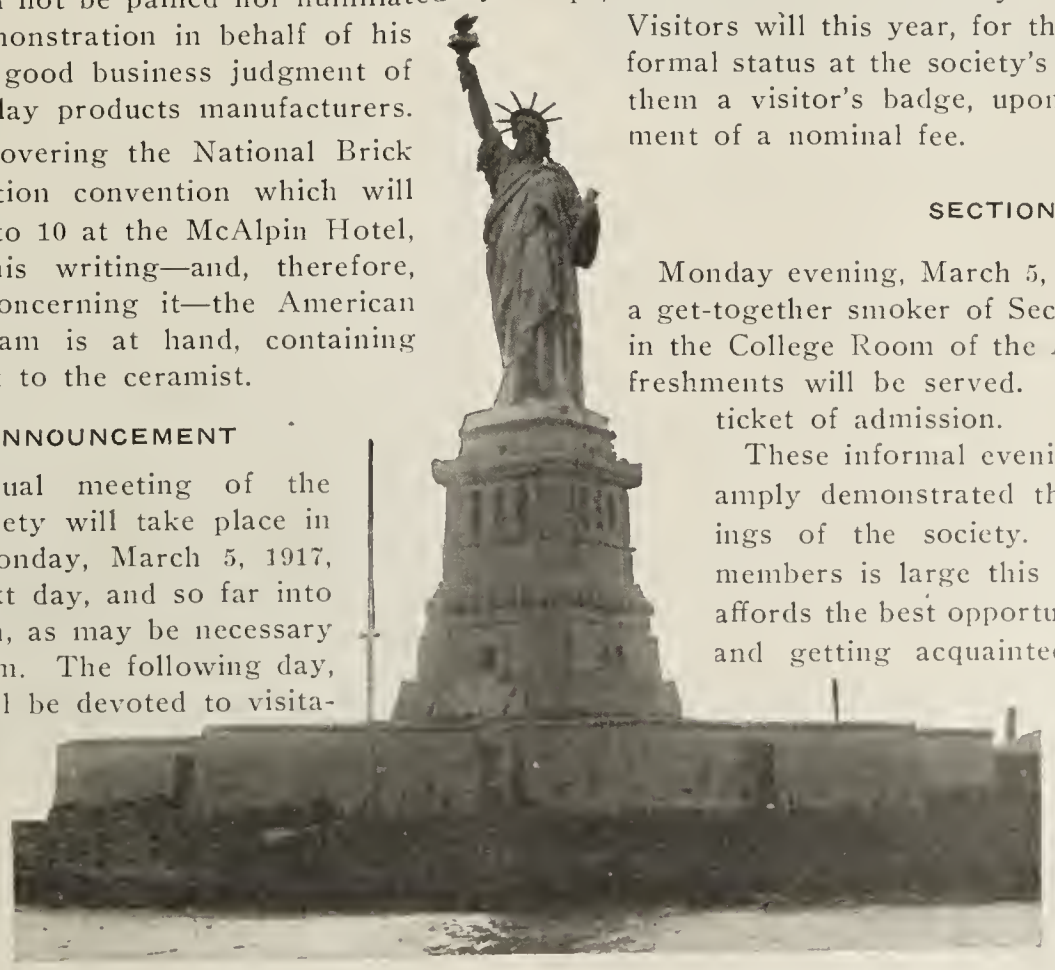
SECTION Q

Monday evening, March 5, will be used chiefly for a get-together smoker of Section Q. It will be held in the College Room of the Astor Hotel. Light refreshments will be served. The badge will be the ticket of admission.

These informal evening entertainments have amply demonstrated their value in the meetings of the society. The number of new members is large this year, and this occasion affords the best opportunity for social mingling and getting acquainted. There will be no speechmaking after the Section Q starts.

READING OF PAPERS

The papers on the list which is given below, will be called for reading in the order indicated.



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Famous Statue of Liberty In the New York Harbor

Heavy Clay Wares: Their Manufacture and Testing

1

Study of Effect of Variation of Pressure in the Forming



Reproduction of Colored Poster Calling Attention to the Complete Building Show. Colored Poster Stamps Bearing This Design Have Also Been Widely Distributed

of Dust Pressed Tiles, by Forrest K. Pence, Zanesville, Ohio.

2

The Advantages of Clay Storage and a Description of a Successful Installation (Illustrated), by F. A. Riddle, U. S. Bureau of Standards, Pittsburgh, Pa.

3

Notes on the Manufacture of Promenade Tile, by Marion W. Blair, Thornton, W. Va.

4

Notes on the Flow of Clay Thru Hollow-Ware Dies, by George D. Morris, St. Louis, Mo.

5

Humidity: Its Control and Relation to Drying Clay Wares, by Walter Angus Denmead, Schenectady, N. Y.

6

The Effect of the Size of the Grog in Fire Clay Bodies, by F. A. Kirkpatrick, U. S. Bureau of Standards, Pittsburgh, Pa.

7

The Relation Between the Fusion Point and Composition of Refractory Clays, by R. J. Montgomery and C. E. Fulton, Pittsburgh, Pa.

8

Volume Changes of Some Quartzites and Commercial Silica Brick and Heating, by Donald W. Ross, U. S. Bureau of Standards, Pittsburgh, Pa.

9

Notes on the Fine Grinding of Refractory Materials Before Testing, by R. J. Montgomery, Pittsburgh, Pa.

10

Relation of Fusing Point of Ash to Availability of Coal for Burning Ceramic Wares, by R. R. Hice, Beaver, Pa.

11

An Attempted Heat Balance on a Continuous Kiln, by Carl B. Harrop, Columbus, Ohio (by permission U. S. Bureau of Standards).

12

Making Paving Brick from Blast Furnace Slag, by J. B. Shaw, Alfred, N. Y.

13

The Principles of Construction of Bucket Elevators, by George D. Morris, St. Louis, Mo.

14

Modification of Load Test on Fire Brick, by J. B. Shaw, Alfred, N. Y.

Raw Materials, Minerals, Their Occurrence, Refining and Testing

15

Notes on the Use of Sulphuric Acid in the Sedimentation of Kaolins, by H. G. Schurecht, U. S. Bureau of Mines, Columbus, Ohio.

16

Notes on Kaolin Refining, by Ira E. Sproat, Macon, Ga.

17

American Clays for Floating Enamels, by J. B. Shaw, Alfred, N. Y.

18

The Relation of Salt to Clay in the Purification of Clays, by H. G. Schurecht, U. S. Bureau of Mines, Columbus, Ohio.

19

A Study of Some American Refractory Bond Clays, by A. V. Bleininger and G. A. Loomis, U. S. Bureau of Standards, Pittsburgh, Pa.

20

Clay and Shale Deposits in the Vicinity of Toronto, by Ernest W. Knapp.

21

Apatite: A Substitute for Bone Ash, by N. B. Davis, Ottawa, Canada.

22

An Instrument for the Measurement of Plasticity, by



Copyright, International Film Service

A View of New York's Waterfront on the Hudson, Showing Some Large Steamers in Their Berths

W. E. Emley, U. S. Bureau of Standards, Pittsburgh, Pa.

23

Discussion on Standard Methods of Clay Testing, led

by A. V. Bleininger, U. S. Bureau of Standards, Pittsburgh, Pa.

24

A Method of Measuring the Time of Set of Calcined Gypsum, by W. E. Emley, U. S. Bureau of Standards, Pittsburgh, Pa.

Glass and Enamel Industries

25

Glass Sands: Their Origin, Mode of Occurrence and Properties, by Charles R. Fettke, Pittsburgh, Pa.

26

The Physical Chemistry of the Fining of Glass, by Raymond M. Howe, Pittsburgh, Pa.

27

Glass Tank-Furnace Operation, by R. L. Frink, Lancaster, Ohio.

28

History of Alabaster Glass, by Alexander Silverman, Pittsburgh, Pa.

29

Topic for Discussion: In What Chemical Condition Does Manganese Exist in Glass When Used as a Decolorizer, and What Factors of Furnace Conditions Affect It? Discussion led by R. L. Frink, Lancaster, Ohio.

30

Enamel Surfaces Under the Microscope, by Emerson P. Poste, Elyria, Ohio.

Glazes and Colors

31

The Cost of Raw Lead Glazes, by Homer F. Staley and Lowell Hewitt, Ames, Iowa.

32

Chrome-Tin Colors at Cone 9, by R. H. Minton, Perth Amboy, N. J.

33

A Synthetic Production of Sulphate Blisters in Whiteware Glazes, by Charles F. Binns, Alfred, N. Y.

34

A Study of Three Component Nomative Systems in Raw Lead Glazes, by Homer F. Staley and W. G. Whitford, Ames, Iowa.

35

The Crawling of Malt Glazes, by C. F. Binns and Mary E. Saunders, Alfred, N. Y.

36

Bristol Glazes, Compounded on the Eutectic Basis (Second Paper), by Arthur S. Watts, Columbus, Ohio.

37

The Control of Fusibility in Fritted Glazes, by Homer F. Staley and R. J. Riley, Ames, Iowa.

38

Report of Practical Application of Bristol Glazes Compounded on the Eutectic Basis, by Arthur S. Watts, Columbus, Ohio.

Bodies and Their Properties

39

Notes on Flint and the Preparation of Porcelain Bodies, by G. H. Brown and C. F. Geiger, New Brunswick, N. J.

40

The Interchange of Quartz and Flint in Pottery Bodies, by Charles F. Binns and Willard I. Sutton, Alfred, N. Y.

41

A Deformation Study of MgO-Al_2O_3-SiO_2 Mixtures, by Arthur S. Watts, Columbus, Ohio.

42

A Deformation Study of BaO-Al_2-SiO_2 Mixtures, by Arthur S. Watts, Columbus, Ohio.

43

Latent Heat of Fusion of Lime and Magnesia, by E. W. Washburn, Urbana, Ill.

44

A New Principle in Heat Measurement, by W. C. Harter, Trenton, N. J.

45

Notes on the Temperature-Porosity-Volume Changes of



Copyright, International Film Service

The Woolworth Building, Manhattan's Mammoth Skyscraper, the Largest Building In the World

Some Porcelain Bodies, by G. A. Loomis, U. S. Bureau of Standards, Pittsburgh, Pa.

46

Notes on the Production of Special Refractories, Marquardt Porcelain and Magnesium Aluminate, by F. H. Riddle, U. S. Bureau of Standards, Pittsburgh, Pa.

RULES COVERING READING OF PAPERS

Except by vote of the society the above order will not be altered at the instance of individuals. Papers called without response will go automatically to the end of the list, where they may receive another chance, if the time permits. Titles submitted too late to appear in the program will be announced by the secretary at the opening of the meeting, and will be given place at the end of the regular program.

Discussion on questions or topics proposed will not be given place upon the program, unless the proposer will contribute a prepared discussion (of 500 words or less) setting forth the question and his views upon it. With the question or discussion sure of being thus definitely led or introduced, the program may profit from this form of participation.

Papers whose authors are not present at the meeting will not be read, unless by vote of the society. Written discussions are desired, and invited, and if the secretary is notified, such will be given hearing before extemporaneous oral discussions. The discussions will be taken stenographically, as usual, for the aid of the editor and those who speak, in reproducing their remarks or preparing written discussions subsequently.

TIME LIMITS

Authors, except specially invited lecturers, are expected to present their papers in fifteen minutes. Where the text is long or the mass of data is too great to permit this, the papers should be abstracted, and only salient points presented, in order to keep within the limits above indicated. The chairman may, of course, extend the time of a speaker, at his option, or by vote of the society.

Oral discussions should not occupy more than five minutes for any one speaker, nor should one speaker appear twice until all others have finished. This matter is under the control of the chair.

THE PROGRAM

A detailed program covering all of the sessions of the society's meetings follows:

FIRST SESSION

Monday Morning, March 5, 1917, the College Room, Astor Hotel.

Business Session

1. Called to Order at 10:00 A. M.
2. Report of Board of Trustees.
3. Report of the Treasurer.
4. Appointment of Committees.
5. Unfinished Business.
6. New Business.
7. Recess for Five Minutes.

Literary Program

1. Presidential Address, Lawrence E. Barringer, Schenectady, N. Y.

SECOND SESSION

Monday Afternoon, March 5, 1917, the College Room, Astor Hotel.

1. Call to Order at 2:00 P. M.
2. Reading of Papers, According to List.

THIRD SESSION

Monday Evening, March 5, 1917, the College Room, Astor Hotel.

1. Call to Order at 8:00 P. M.
2. Reports of the Councillors of the Local Sections, and Student Branches.
3. 9:00 P. M., Section Q, Light Refreshments will be served.

FOURTH SESSION

Tuesday Morning, March 6, 1917, the College Room, Astor Hotel.

1. Call to Order at 9:30 A. M.
2. Resumption of Reading of Papers, According to List.

FIFTH SESSION

Tuesday Afternoon, March 6, 1917, Lecture Room B, Metropolitan Museum of Fine Arts, Central Park.

1. Call to Order at 2:00 P. M.
2. Lecture: Ancient Greek Pottery, by Miss Richter, Curator, Department of Classical Art, Museum Staff.
3. Paper: An Attempted Reproduction of Ancient Oriental Glazed Pottery, by Charles F. Binns and Nellie I. Wells, Alfred, N. Y.
4. Lecture: Chinese Porcelains, by Mr. Bosch Reitz, Curator, Department of Oriental Art, Museum Staff.
5. Note: An Indigenous American Artist, and His Medium, by Edward Orton, Jr., Columbus, Ohio.
6. View of the Ancient Greek Pottery and the Chinese Porcelains in the Museum Galleries, personally conducted by Miss Richter and Mr. Reitz.

Tuesday Evening, March 6, 1917

This time is left free for committee hearings, Board of Trustees meeting, or similar purposes. It is possible that the society may want to use this time for the discussion of the Preparedness issue.

SIXTH SESSION

Wednesday Morning, March 7, 1917, College Room, Hotel Astor.

1. Call to Order at 9:30 A. M.
2. Continuation of Reading of Papers, According to List.

SEVENTH SESSION

Wednesday Afternoon, March 7, 1917, College Room, Hotel Astor.

1. Call to Order at 2:00 P. M.
2. Completion of Reading of Papers.
3. Final Business Session.
4. Installation of Officers and Newly Elected Active Members.
5. Adjournment.

Thursday, March 8, 1917

The arrangement of definite itineraries has not been completed. It is expected that at least two different parties will be formed, with different destinations. A definite plan for this part of the program will be ready when the meetings begin on Monday, and possibly earlier.

PROMPT ACTION NECESSARY TO SECURE ROOMS

As has already been advised in the February 13 issue of "Brick and Clay Record" all planning to attend the meeting of the American Ceramic Society or the National Brick Manufacturers' Association convention will make no mistake by reserving their accommodations at once, preferably by wire. While both the Astor and McAlpin Hotels have made assurances that all who register their intention to visit New York between March 5 to 10 will be taken care of, provided such reservation is made in due time, there is no indication that late comers will be accommodated. This winter has witnessed what was formerly though impossible, namely, New York's hotel capacity exceeded. Nothing like the hotel crowds has ever been experienced before, and the overflow has frequently extended to Newark, N. J., and other adjoining cities. It is, therefore, not only a matter of getting a room at headquarters, but of getting a room in New York, that has to be considered, and may not be safely overlooked or procrastinated.

* * *

A new kiln is to be erected at the plant of the Smith-Phillips Company at East Liverpool, Ohio, for experimental purposes. It is so constructed that, according to its designer, it can fire gloss and bisque ware at the same time, and while costly, is claimed to be a real money maker for the potter. The kiln has been explained to many American potters, and the experiment at the Smith-Phillips plant will be closely watched.

DRYER DETAILS

A Discussion of Points Frequently Overlooked in the Construction of Drying Equipment, Which, if Given Attention, Might Eliminate Much of What Has Heretofore Been Considered a Necessary Evil

By A. F. Greaves-Walker

Author of "Testing Clay Properties," "The Design and Construction of Down Draft Kilns," and Many Other Timely Articles on Subjects of Vital Importance to the Clay Products Manufacturer

(*Continued from February 13 Issue.*)

MANY DRYERS which are otherwise well built have their efficiency greatly reduced thru having a poor roof. It is utter folly to expect a reinforced concrete or steel and brick roof from three to four inches in thickness to prevent excessive radiation and to keep out moisture. It is exactly the same proposition as building a kiln with a three-foot wall to prevent radiation and then covering it with a nine-inch crown. Any clayworker who has put a second story over his dryer tunnels and used it for drying purposes knows this from the fact that he can dry in the upper story almost as well as in the tunnels simply from the radiation thru the dryer roof. Furthermore, such a roof should be protected from the rain and snow by a protecting roof, otherwise a very large percentage of the moisture from this source is certain to find its way into the tunnels.

If it is proposed at some future time to put a second story over the tunnels in order to increase the drying capacity, as is often done on hollow-ware plants, a thin, solid roof over the tunnels is the proper construction, but if such is not the case, every effort should be made to so construct a roof that practically all radiation is prevented.

A roof which has been designed from the results of thoro laboratory experiments and is practically the last word in dryer roof design is shown in Fig. 3. As will be seen, it consists of two courses of four-cell six-inch hollow-tile with a layer of insulating felt between. The under side is given a coat of ¾-inch cement stucco mixed very lean and the top is coated with one inch of cinder concrete. Such a roof is unquestionably more expensive than the ordinary dryer roof, but its efficiency will soon pay any additional cost. The tile are supported on "T" irons spaced one-foot centers. This roof is a decided success in preventing radiation and its construction might well be copied. While a roof of four-inch partition or book tile is fairly good, it is too thin to be efficient.

RAILS

In considering the dryer it would hardly do to pass by without devoting some space to track construction. Putting cars on the track in hot tunnels is the curse of many plants, and strange as it may seem, no real efforts are ever made to *permanently* overcome the trouble. Many clayworkers would not credit the statement that there are some plants that have operated for years and have never had a dryer car jump the track in a tunnel, yet such is the case. It is simply another case of engineering methods against "any old way."

The atmosphere in a dryer is such that wooden ties will not hold spikes for any length of time. The moisture and heat

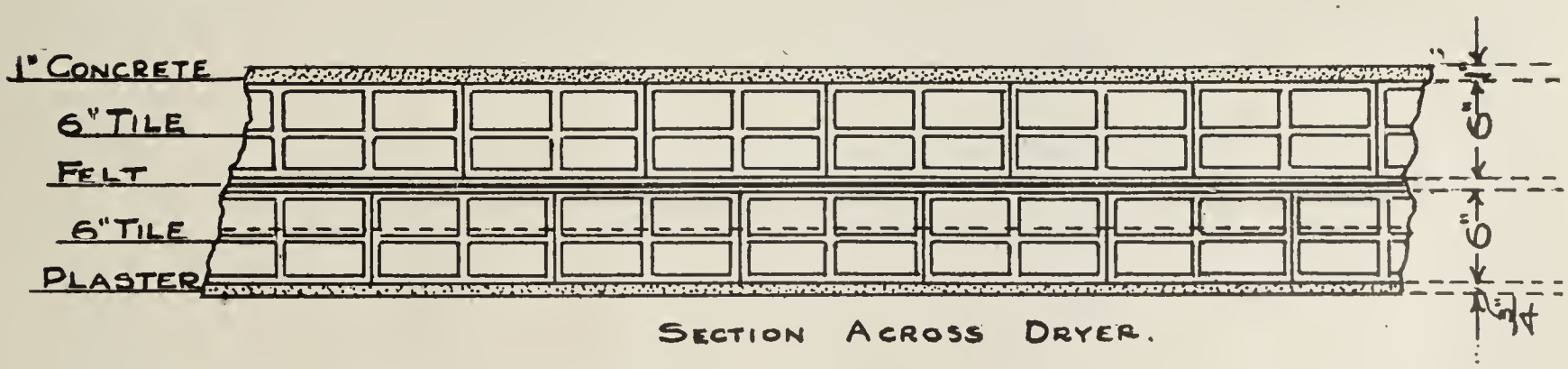


Fig. 3. Dryer Roof Design

combined tend to shrink and rot any kind of timber. Also there is the constant danger in many dryers of the ties catching fire.

The most modern method of overcoming these difficulties

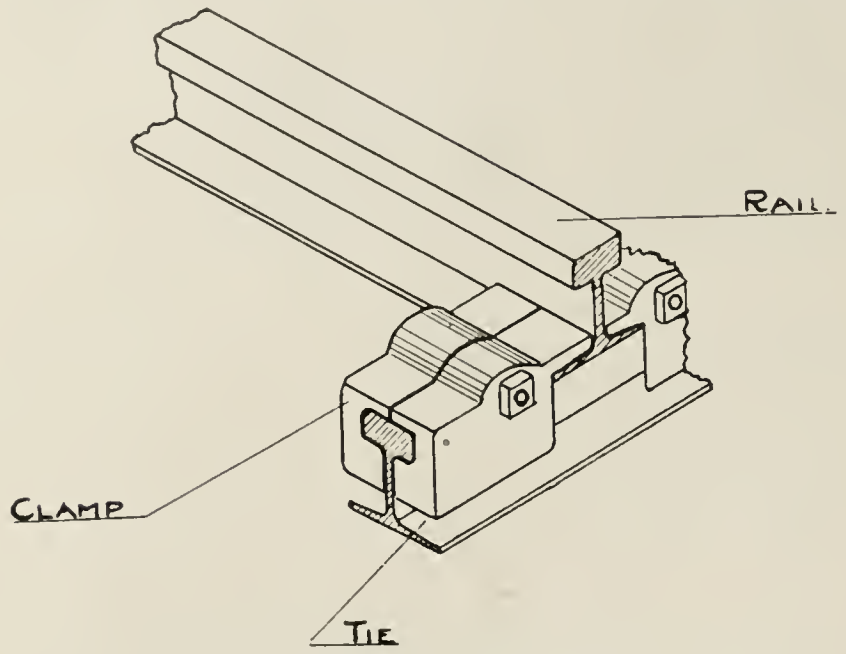


Fig. 4a. Cast Iron Rail Clamp

is to use steel rails for ties. These rails are built into the dryer walls and are therefore stationary. The tracks are laid on these rail ties and fastened to them with iron rail clamps, as shown in Fig. 4a. Dryer tracks constructed in this way are supported on "T" irons spaced one-foot centers. This roof cerned, will be trouble-proof. Fig. 4b illustrates this method of construction.

The rails in dryers are very often too light for the work expected of them. Twenty to twenty-five pound rails will do much toward eliminating trouble, as there is no chance of their kinking under the weight they have to carry.

The grade or fall given the tracks in a dryer is an important item. It should be only just enough so that the transfer men are compelled to push a car without any great effort, all the way into a tunnel, or to pull a car out without having the cars behind rush out before giving a chance to block them. When too much grade is given the men will "shoot" a car into a tunnel with the result that when the moving car hits the stationary ones considerable ware is broken or damaged all the way down the line, to say nothing of the mess created on the tracks. Too little fall is also bad, for in that case the line of cars cannot be started without "bumping" them in much the same way that a locomotive takes up slack for a start. This results also in much damaged ware.

A grade of one foot in one hundred has proved to be good for the average dryer, altho with cars which run easily, this has sometimes been a little too much, and with hard running cars too little.

TUNNEL DIMENSIONS

In an open room dryer the dimensions are not very important, the main point to be watched being the keeping of the source of heat below the ware.

In tunnel dryers where the flow of heat is horizontal or partially so, the dimensions of the tunnels are extremely important. If there is any one thing that makes for inefficiency in many dryers it is the overlooking of this fact. In order that the heat in a tunnel may do efficient work, the car and ware must fit as tight as is practically possible. *Space over the top of the ware should be absolutely avoided,* for heated air always rises to the top, and if it is given an opportunity, most of it will flow over the top of the ware instead of around and thru it. Not only is heat wasted in this manner but the top courses of ware are dried first and often too fast with heavy losses as a result. In building tunnels it is therefore *absolutely necessary that the exact height of a loaded car of ware be known and only sufficient space left above to give clearance.*

On each side of the cars also *only sufficient space* should be left to give good clearance, otherwise the air will take the path of least resistance and a large proportion of it will flow between car and walls without doing any work.

The design of the lower part of the tunnels is an item which is overlooked by nearly all dryer constructors. Even those who make the cars fit tight in a tunnel give very little thought to the creation of a flow of air beneath the cars or to the getting rid of the ware which is jarred or falls from

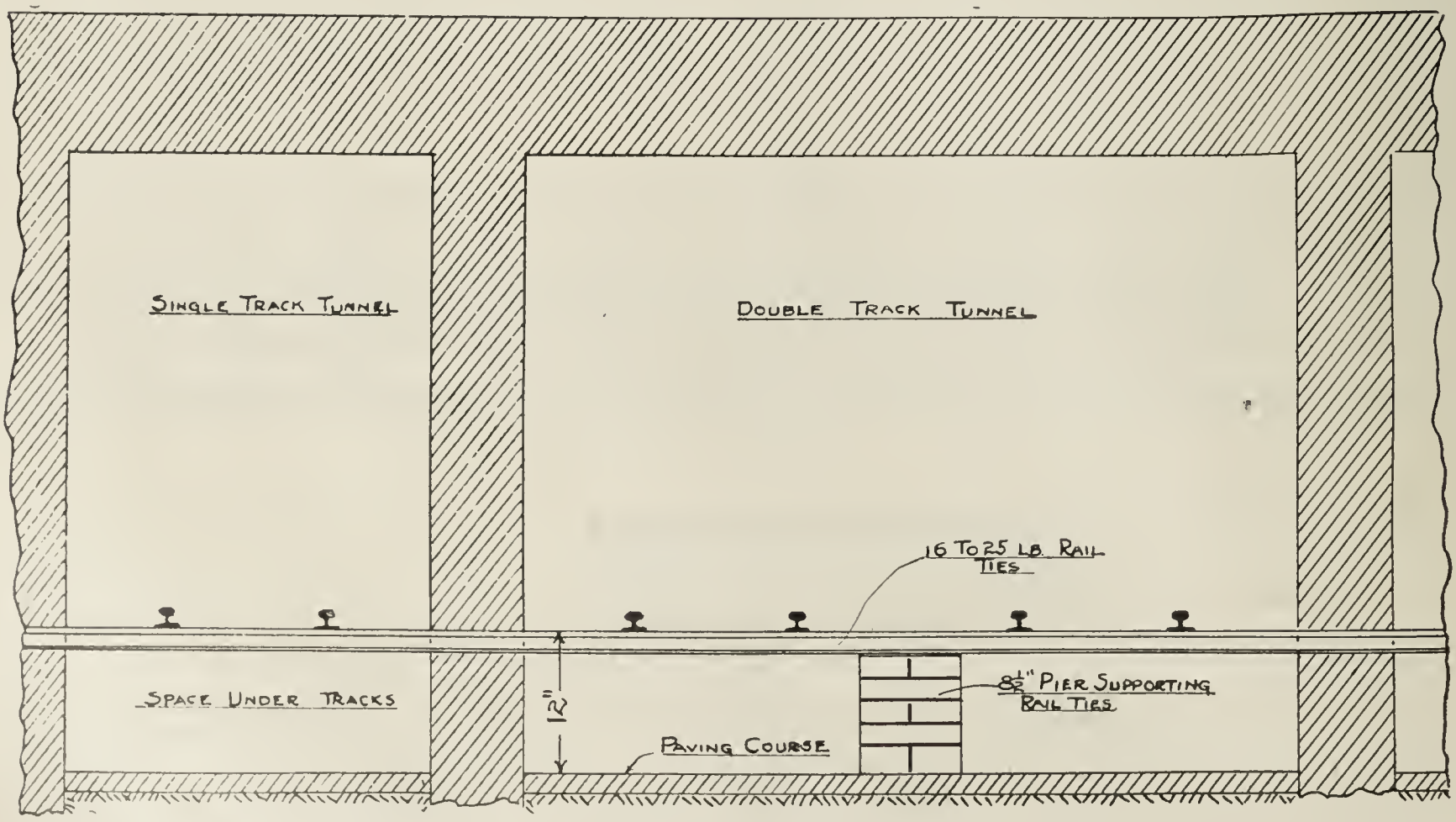


Fig. 4b. Showing Details of Single and Double Tunnel Construction

the cars, and which in the average dryer is the cause of so many cars jumping the track.

If steel rail ties are used to support the tracks it is a simple matter to leave a space of one foot below the tracks the full length of the tunnels. This space offers a free path for the air flowing thru the tunnel which, combined with the natural tendency of the air to rise, gives exactly the conditions in the tunnel which are most desired, namely, a circulation thru and under the ware.

Furthermore, this space allows all ware falling from the cars to accumulate *under the tracks instead of on them.* Even in dryers where there is much loss during transit thru the tunnels this space will only require cleaning out about once each year. Most clayworkers who have had experience with tunnel dryers will undoubtedly agree that if the space serves no other purpose, the fact that it will keep the tracks clean makes it a really worth while item in dryer design. This type of construction is also shown in Fig. 4b.

The question of putting one or two tracks in a tunnel often comes to the fore. There can be no question that it is an extremely annoying thing to have a loaded car jump the track in a single tunnel dryer, especially where the cars fit fairly tight. Sometimes the cars will be in such a position that, due to the limited space in which the men have to work, it takes hours to get it on again. Much of this trouble is eliminated when double track tunnels are built, for by temporarily clearing one track, plenty of room is provided for several men to get around the wrecked car. A well designed double track dryer should be as efficient as a single track dryer and the advantage referred to above should carry weight when considering this question.

DOORS

A vexing dryer problem is that of doors. Any number of different designs are in use, but each one of them seems to leave something to be desired. For single tunnels a pair of small outward swinging sheet steel doors to each tunnel is much in favor. Having two doors to each tunnel makes each of them very light, and as they swing out, a string of cars

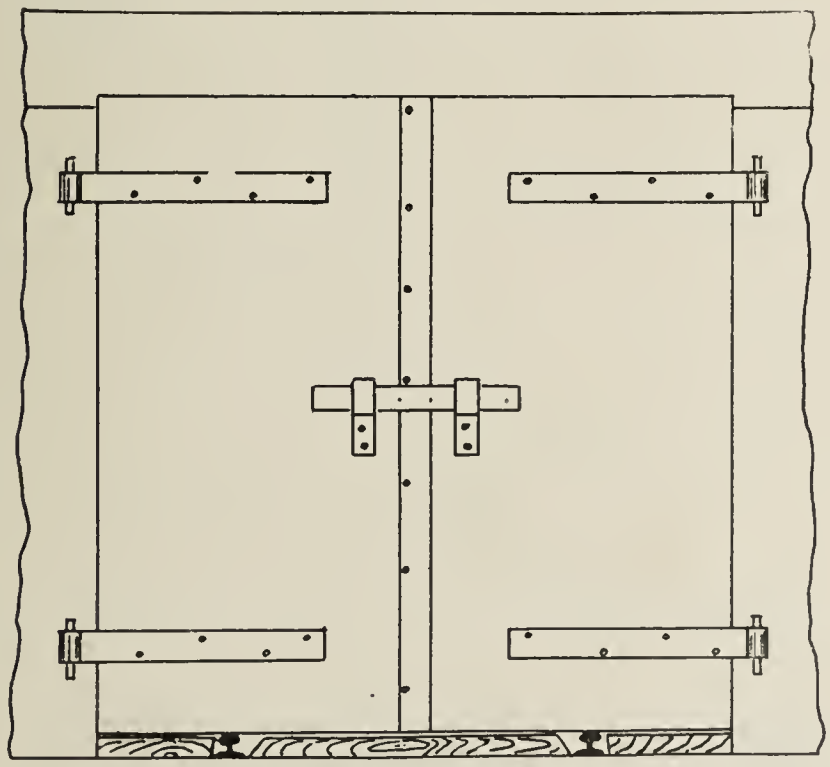


Fig. 5. Double Steel Doors

that may be accidentally started will part and pass thru them without doing them injury. Such a pair of doors is illustrated in Fig. 5. The space between the rails, which is often left so that it admits much cold air, can be filled with a 2x4 with grooves cut for the wheel flanges. Where double tunnels are used the swinging steel door is not so successful as its weight is inclined to make it sag, thus causing trouble in dragging on the rails when opening or closing.

The counterbalanced door which is raised and lowered is a popular type, especially where the storage space at the cool and hot ends is limited, but it has the disadvantage of being battered or broken if the cars in the tunnel start and jamb it.

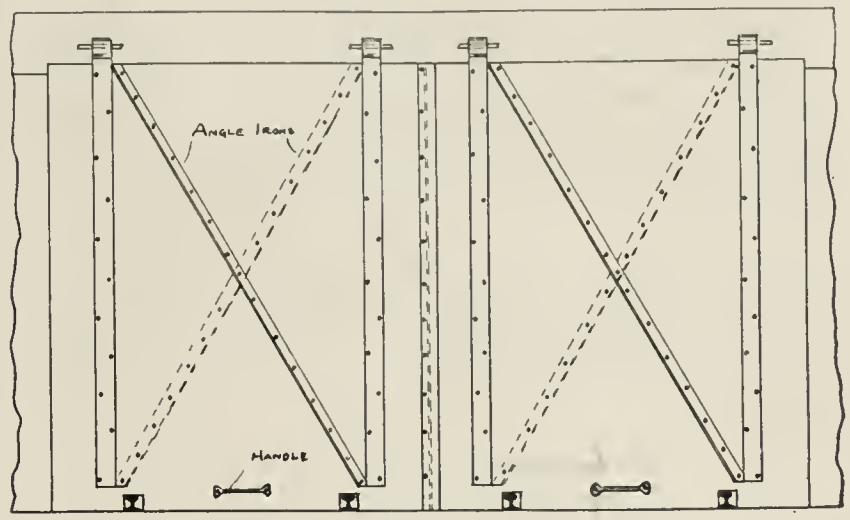


Fig. 6. Steel Lifting Doors for Double Track Tunnels

Another type which is less popular, but nevertheless successful, is the sheet steel door with the hinge at the top. This is swung open by lifting from the bottom. Cars striking it merely lift it without doing it any damage. However, for double tunnels it is quite heavy and this is a disadvantage, altho it can be counterweighed. This door can be fitted tight around the rails. Suspended hooks must be provided for holding it open while putting in or drawing cars. This type of door is shown in Fig. 6.

VENT STACK CONSTRUCTION

Many dryers, both of the tunnel and open room type are provided with a stack at the cool end. This acts in lieu of an exhaust fan. The question as to whether to use a fan or a stack is one that can only be decided by an engineer who has examined the proposition thoroly, but there is this to be said in favor of the stack—it does away with the fixed operation charge of a fan.

Vent stacks are often built of lumber, but when built in this way they are not a good, permanent investment. Stacks of brick or hollow-tile when well built are both permanent and of good appearance. This latter point is worth consideration at this time when all industries seem to be vying with each other in their efforts to combine utility with beauty in factory buildings.

When building of brick or tile, the walls of the stack should be 8½ inches thick. As a vent stack for a ten-tunnel dryer or its equivalent in width offers a fairly large surface to the wind, it is safest to use cement mortar or at least a well spiked lime mortar.

On account of the varying and fluctuating temperatures of the vapors from a dryer, it is difficult to figure a dryer stack as is done in the case of a boiler stack. It has, therefore, become an almost general practice to build these stacks *fifty feet high.* If it should be necessary to build a higher stack than this, it is a question whether it would not be better to install a fan in the beginning.

When constructing a stack, consideration must be given to the fact that it must span the tunnels or rooms. This means that the walls between the tunnels or rooms directly under the stack must carry concentrated loads. Also that the stack walls directly over the tunnels must be carried on steel.

Fig. 7 shows a standard type of stack for a ten-track dryer having one track in each tunnel. When built of brick this stack weighs approximately ninety tons. Including the two outside walls this means that each of the eleven walls will

be figured so that they will safely carry this load. Their size will naturally depend upon the nature of the soil upon which they are built. The walls supporting the stack should be laid up in cement mortar. Several collapses have occurred which have caused much damage to buildings thru lack of attention to these details, and it will pay well to give them close attention.

In single track tunnel dryers two three-inch "I" beams under each wall will safely carry the load, as each span is short. In double track tunnel dryers two six-inch "I" beams should be used under each wall. When a ten-track dryer is divided into two rooms and the steel must span five tracks, four ten-inch "I" beams are required to carry the load, two under each wall.

In cases where it is desired to put ten tracks in one large room it is necessary to build a pier eighteen inches thick in the center of the span, which of course, makes the construction the same as for a five-track span.

STORAGE AND COOLING TRACKS

Few clayworkers who are not fortunate enough to have had experience with a liberal storage space at each end of the dryer fully realize the value of it. Dryers are often encountered which have no storage room at all at the cool end and probably room for only one car at the hot end, and this, in spite of the fact that plenty of space was available at the time the dryers were built.

It is always advisable to have storage room for at least three cars on each track at the cool end and from three to five cars at the hot end. The storage at the cool end allows for fluctuations in the speed of the setters, also for occasions when damp ware begins to show at the hot end and setting must be stopped, as is the case on many plants late in the afternoon. With a storage, the machine can keep running on extra cars which can be thrown in on the storage tracks before each tunnel and put into the dryer during the night when dry cars can be pulled.

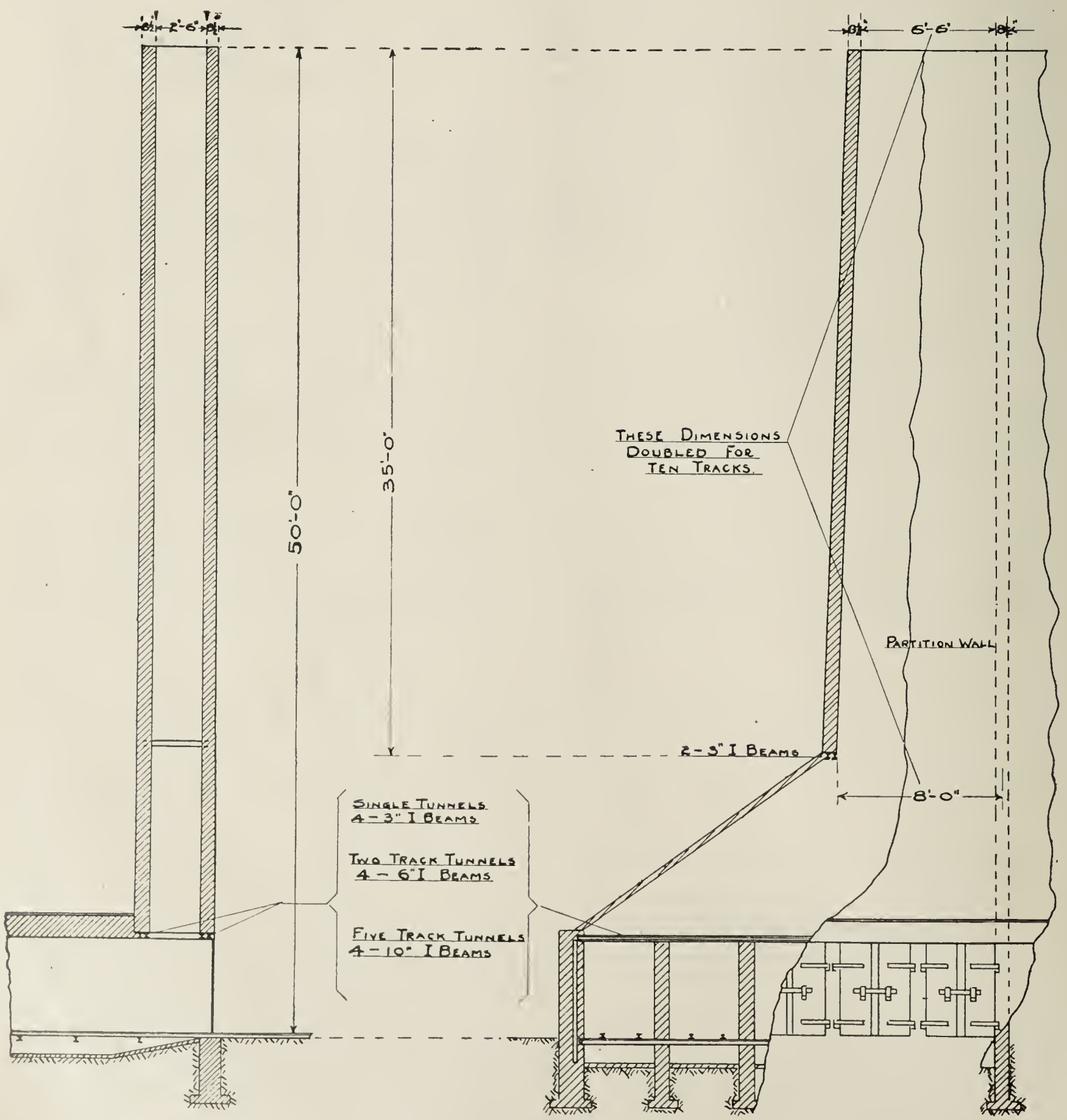


Fig. 7. Detail of Brick Dryer Stack

A good storage at the hot end allows the transfer men to make a pull of several cars from each tunnel at a time, thus saving time and cutting down labor costs. The ware gets sufficient time to cool, and is therefore, handled more carefully by the setting crew. An important point to be considered also is that if extra cars are provided the capacity of the dryer can be materially increased. With the dryer full and two or three full cars on each storage track at the cool end at quitting time, it is very little trouble for the night burners to make one, two or three pulls during the night and at the same time put the wet cars in as room is made for them. This system will often get that little extra capacity out of a dryer which is needed to keep it in step with the machine and kilns and, at the same time, get all dry ware.

The storage tracks should always be provided with a roof as much of their value is lost if this is not done.

A very neat method of supporting such a roof is shown in Fig. 8. These supports are made of old four-inch boiler tubes or four-inch pipe and the braces of old two-inch pipe. When given a coat of paint they are not only neat but are exceedingly strong and take up less room between the tracks than almost any other type of construction.

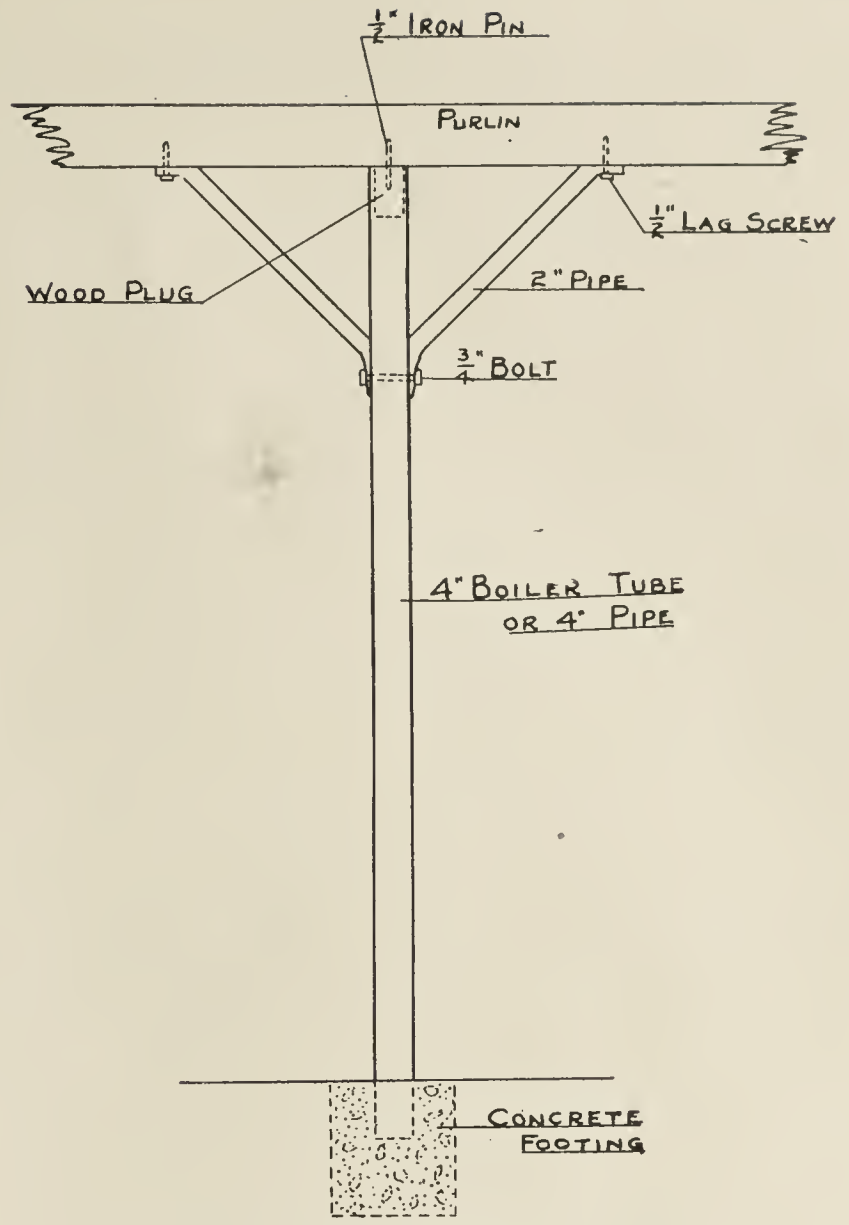


Fig. 8. Detail of Post for Dryer Shed

Detroit Brickmaker Entertains County Judges

Three judges of the Wayne county circuit court and one of the recorders court were the guests of Charles H. Bryan of the Mercier-Bryan-Larkins Brick Company of Detroit, Mich., at a dinner given on February 1 at the Detroit Board of Commerce. Frederick B. Stevens, another noted brick man of Detroit, acted as toastmaster at the dinner.

To Build Workingmen's Homes of Brick

The problem of housing workingmen and persons of moderate means in and around Reading, Pa., has resulted in an ambitious attempt at its solution by the borough of Wyomissing, the town that is located within a park and just across the Schuykill river from Reading. Plans are about to be carried out, and work has been begun upon one of the largest operations of its kind ever undertaken in Berks county, Pennsylvania. It is believed that the sequel to the same will be the erection of several hundred model homes, upon a tract of one hundred and fifty acres, which will involve an expenditure of $1,000,000.

Each house will consist of six or seven rooms, varying from single and twin construction up to blocks of five or six, but with a diversity of architecture.

In the construction of these dwellings brick will be the chief commodity used. The plans include the elimination of the back yard, and all the houses will have practically two fronts, with front and rear lawns and with no fences or divisions, except ornamental hedges. The whole area will be interspersed with malls, open circles and parking places, planted with shrubbery and flowers. The grouping will be around a pretty park, which contains a lake of spring water.

In their disposition and location with regard to each other, in exterior form and interior finish, the homes will be planned for convenience and comfortable living. Provisions will be made for space, light, air, outlook, and in attractive, cleanly, agreeable surroundings, which will compare favorably with the most expensive homes, and to be more free than the average of such homes from disagreeable, sordid and unsightly environment. Another town in Berks county, Boyertown, a borough of 4,000 inhabitants, has had trouble in housing facilities, and there is a great scarcity of homes, so that some of the citizens are also giving this problem consideration. The town has many wage earners, owing to its large cigar factories and one of the largest casket factories in the state.

COMING CONVENTIONS

March 5th to 10th—American Ceramic Society and National Brick Manufacturers' Association, at New York, N. Y. A. C. S. Headquarters Hotel Astor; N. B. M. A., McAlpin Hotel.

March 5th and 6th—National Paving Brick Manufacturers' Association Board of Directors Meeting, McAlpin Hotel, New York, N. Y.

March 5th to 11th—Second National Complete Building Exposition, Grand Central Palace, New York, N. Y.

SALES ETHICS COMPETITION

Particular Attention on the Part of Face Brick Salesmen is Called to the Division of Percentages in Grading Papers Set Forth Below

HIGHLY ENCOURAGING describes well the feeling with which "Brick and Clay Record" surveys the applications which are being received daily from salesmen in all parts of the country, stating their intention of taking part in the sales ethics competition, initial announcement of which was made in the February 13 issue of "Brick and Clay Record."

It is very evident from the returns that already have been received that those who are engaged in the selling of face building brick are in sympathy with the purpose of the competition and are offering their co-operation most generously in order to make it a success.

HAVE YOU REGISTERED?

To those who have not as yet sent in the application blank which they have received, properly filled out, we wish to say that March 15 is the last day upon which registrations will be received. If you are a face brick salesman and are among those who have not as yet taken any action toward filing your registration, please do so at once so as to be sure to have a part in this most important contest.

In the first announcement of the competition, which appeared in February 13, 1917, issue of "Brick and Clay Record," it was stated that one hundred per cent. would be split in three parts when the papers were graded. This division, it was stated, would take the following form: That as much as sixty per cent. would be allowed for the number of real reasons why paragraph No. 4 of the American Face Brick Association's code of ethics should be observed; the remaining forty per cent. it was announced, would be divided equitably between excellence of expression and neatness of presentation.

It can be readily seen that while this method of grading the papers to be submitted in the sales ethics contest is fundamentally satisfactory, it is rather indefinite as to details, and for this reason, we desire at this time to give a more complete standard of grading to which we wish to call every face brick salesman's attention with the added advice that this standard be carefully studied by all who are planning to take part in the competition.

DIVISION OF PERCENTAGES IN GRADING PAPERS

The two main points to be considered are:

1. Substance, what is said.
2. Form, the way it is put.

I.

Under substance may be considered:

30% 1. The force or value of the arguments, reasons, or ideas, simply as such.

30% 2. The logical order in which they are built up to carry connections.

II.

20% 1. The rhetoric or literary form: that is, the diction the style of expression, the way in which it is put.

15% 2. Matters of grammar, including spelling, punctuation, etc.

5% 3. Neatness and general appearance of manuscript.

The above values assigned to the various items in the writing of a paper on paragraph No. 4 of the A. F. B. A. code of ethics, were arrived at after some careful thought and the receipt of valuable suggestions from prominent persons engaged in the marketing of face brick. While the basis of grading the papers outlined in the February 13 issue is sufficiently rational and simple to be understood by all, it has been deemed wise to make a further differentiation in order to make it easier for the judges to determine who justly deserve the prizes.

Of course, real reasons are the substance of any paper and deserve fully sixty per cent consideration, but there is many a man who furnishes good reasons and many of them but who has no logical sense or sense of logical development on a subject and often destroys the value of his reasons by a poor arrangement of his very excellent material. That is to say, the logical development of the subject, aside from its substance, whatever it is, is also of great importance.

READ THESE REQUIREMENTS CAREFULLY

Concerning the remaining forty of the one hundred per cent. which is discussed under section two of the above division of values, we believe the explanation given is perfectly clear. It might be said, however, in regard to item three of division two, namely, "Neatness and General Appearance of Manuscript," for which five per cent. is allowed as a maximum, that one of the rules of this contest shall be that *all papers must be submitted in triplicate (that is three copies must be submitted) on plain white paper of the usual letter size, namely* 8½ *by* 11 *inches, typewritten and on one side only, with at least a one inch margin on each side of the text.* If the contestant observes rigidly these requirements, there will be no question about receiving the value of five per cent. to which reference has been made above. In addition to these requirements, no paper should be longer than 3,000 words. This is set as an absolute limit and must be observed.

Another consideration in the sales ethics competition to which it is desired to call attention, is the identification of the various papers submitted. In the initial announcement of the competition, appearing in the February 13 issue, it was stated that when the Editor received the contestant's paper, he would immediately assign it a number before forwarding it to the judges. This policy will be strictly observed by the Editor and he wishes to ask contestants as a further aid in carrying it out that they be careful not to make any mark of identification upon their paper but allow it to accompany a letter or piece of paper to which they have signed their names. The letter or other identification can then be separated from the paper itself after a number in quadruplicate has been placed upon the identification slip and the paper itself. This will preclude the judges knowing whose paper they are considering and there will be no season for any contestant believing that favoritism has been allowed to influence the decision.

FACE BRICK SALESMEN!

Do not forget the closing date for the receipt of registration—March 15. If you have not received an application blank, please write the Editor of "Brick and Clay Record" for one. All salesmen employed in the selling of face building brick by any concern in the United States are eligible for the contest.

Please do not neglect to read carefully the standard which will be used in deciding the papers worthy of prizes. Some small consideration, overlooked by you, may mean the loss of an award. Do not delay the getting together of material for writing your paper nor the putting of this data in writing. In other words, send us your paper just as soon as you can. Do not wait until the closing date, which has been set as April 15, if you can send us your paper before that date.

Do not forget the prizes, which are $50, $25, $15 and $10, to be awarded to those who submit the best four papers on paragraph No. 4 of the A. F. B. A. code of ethics, which is as follows:

"That this Association condemns the practice of 'knocking' competitors' materials or casting aspersions that may be detrimental to the general face brick business, and recommends that its members insist that their employes and selling connections refrain therefrom."

If you are interested in promoting a discussion of good sales ethics, do not hesitate to take the necessary action to insure your being eligible to submit a paper. *Do it now.*

* * *

Paterson (N. J.) Silk Mills Built of Brick

Those sections of New Jersey near New York City are destined to develop more rapidly in a very short time than any other part of the state, including Newark, Jersey City, Paterson and a number of other smaller towns. In Paterson, a city of about 135,000, population, a number of silk mills are being erected at a total cost of $500,000, and are all to be of brick. There are no silk mills in the city built of concrete. A school is soon to be erected in that city to cost approximately a quarter of a million of dollars and a high school to cost $500,000. Jersey City likewise is building many new schools and factories. Newark has now many under way. This city is noted in this section of the country as the city of brick pavements, because of the fact that many of its streets are paved with brick.

In all of the buildings mentioned above burned clay will be used very generously. No stock of clay wares is left in any of the yards in the northern section of New Jersey and few are covered at the dealers' terminals for spring. This means that there is apt to be a shortage, making it difficult to complete the buildings now under construction.

Brick at Newark is at different prices, but is up to $9.50 to 10.00, with many saying it will advance to $15.00 before the new brick is ready for distribution in the spring. Agents feel nervous about being able to procure what they need for use, since they have little, if any on hand. Navigation is now closed on the Hudson and Hackensack rivers, and the Raritan is ice-bound. It was reported that four schooners were brought down the Hudson during the last week, but this was due to overcrowded yards and it was necessary to make room where the plants were running all the year round. All of the brick that can be received by the agents in this state is by rail, and they are taking all they can get, realizing that they will have difficulty in getting what they want later. Prices are apt to reach unheard of figures very shortly.

WAR MIGHT HINDER, CANNOT STOP BUILDING

THESE ARE TRYING DAYS in Gotham. The belief is persistent that the United States is on the eve of a declaration of war, said declaration to be made by either the Imperial German Government or by the United States. Nobody is unduly excited. Everyone seems to be taking the seriousness of the situation in a serious and calm manner. As this is being written, the situation is as tense as ever, with every prospect of the quiet being of the menacing kind that precedes a storm. In this case it is felt that the storm will be the sinking of something so thoroly American that it will be the straw to break the camel's back and the United States will be plunged into the awful carnage devastating a big part of the world.

OPTIMISM VS. PESSIMISM

A month ago there was war talk and plenty of it, but it did not bother anyone in the building business especially. A spirit of optimism pervaded everything. Architects, builders, material dealers, investors, all were optimistic and everybody was talking of the bright outlook for 1917. Now there is a strong revulsion of this feeling. Pessimism is abroad. Pessimistic opinions in regard to the immediate future are filtering in here and there which, after all, might be a natural condition in strenuous times with the country in its present state. The other day they stretched a big steel net across the "Narrows" between Staten Island and Long Island, the mouth of the upper New York Harbor. It was done by the government and no secret was made of the fact that it was for the purpose of keeping out "enemy warcraft." Over near Rockaway, only a short distance from Coney Island, they're throwing together a big fortification where some of the largest guns in existence will be placed "to protect Manhattan from the enemy."

Considering little warlike moves like these, bumping into soldiers armed with big rifles and bayonets, and in some cases, tending big machine guns on New York's big bridges, and last, but not least, the big red lettered "war extras," can one blame New York for being a trifle upset and squeamish?

Is it any wonder that the building business has "slowed down?"

A number of important building projects are being held in abeyance pending the result of the situation. The suspense of "waiting for something to happen" is a "watchful waiting" policy that, while not altogether pleasing, is in reality more of a case of marking time than anything else, according to the well informed.

WAR GOD THREATENS SITUATION

Yes, old man Pessimism is stirring in Gotham, but young Mr. Optimism is not dead nor dying. On the threshold of the year 1917, predicted by nearly everybody as a year that would break all records in the building line, is a great big calamity howler, the God of War, belching forth fire and smoke like a poorly regulated brick kiln, but despite this, despite the fact that the President and the nation await an "untoward act" before taking further steps to "meet any eventuality," comes to the front this fact--

WAR MIGHT HINDER BUT CANNOT STOP BUILDING

The demand for accommodations in structures of a residential and commercial character is still largely in

(*Continued on page* 472.)

From PRESSING ROOM *to* KILNS

The Fifth of a Series of Interesting and Instructive Articles on the Manufacture and Use of Architectural Terra Cotta

By Herman A. Plusch, M.S., Cr.E.

Research Engineer, Abrasive Company of Philadelphia, and Consulting Ceramic Chemist and Engineer.

AFTER the prepared terra cotta clay is pressed into the mold and allowed to dry sufficiently to be removed, or rather to have the parts of the mold removed from around the piece, the latter is allowed to dry a little, and is finished, as has been explained in a previous article.

A SCENE IN A PRESSING ROOM

Attention is called to Fig. 1, which represents the interior of a portion of the Federal Terra Cotta Company's pressing shop in its plant at Woodbridge, N. J. Here the presser is putting the last handful of clay into the mold, on one of the partitions of the piece. In front of him is a piece that has been turned from the same mold on which he is now working. On the table in the foreground is a piece of terra cotta, which has stiffened only very slightly, and is in the process of being finished. Note the finishing tools on the table to the right of the operator. In the right foreground will be noticed a heavy platform with eye hangers on the corners. These platforms are used to deliver clay to the pressers, to carry in and out the molds and the finished ware. They are conveyed by overhead cranes, from which chains hook in the eye hangers. This system is used in the Federal Company's plant, and offers many advantages, some of which are speed, economy, and saving of floor space taken up by clay, molds and finished ware when in motion. In this particular illustration the delivery platform is filled with clay which is covered with damp bags to keep it in proper pressing condition.

DRYING TERRA COTTA

The drying of the ware is accomplished by various methods; in some cases the pieces are "turned" on hot floors, either of concrete with heated flues beneath, or on slatted wooden floors with steam coils beneath. This is perhaps the slowest drying method in use. Another method is to put the pieces in rack driers heated by steam coils or waste heat and removing them when dry. Rack cars are also used on which are loaded the leather-hard ware. These cars are pushed into tunnel dryers, which latter are heated either by steam coils direct, by air which is passed over heated coils, or by waste heat from cooling or burning kilns.

The tunnel dryer in which the hot air is forced in the car outlet end of the dryer and exhausted from the car inlet end of the dryer furnishes ideal drying conditions, as the cold damp ware comes in contact with moisture-laden warm air, and as the cars are intermittently drawn from the opposite (hot) end of the dryer, they are moved gradually toward the hotter and more rapidly drying zone. The danger of cracking in properly manipulated dryers of this type is very slight—also the drying is as rapid as is consistent with safety. Humidity dryers, vacuum dryers and other complicated and expensive drying installations are not largely used in the terra cotta industry.

HOW SLIPS AND GLAZES ARE APPLIED

The ware when dried is sprayed with plain red or buff burning slips, grey vitreous or other slips, which look, when fired, like natural building stones. Glazes are generally sprayed over an underbody, underslip or engobe. Various spraying devices are in use and they differ in their construction in almost every plant, altho the basic principles involved are the same. See Fig. 2.

This illustrates a typical method of spraying terra cotta. The atomizers here used consist of two pieces of brass tubing about one quarter inch in diameter, the ends of which are at right angles. A piece of the tubing about six inches long goes down in the can of slip or glaze and the air supply comes from the other piece of tubing. Air is supplied by compressors, piped to the spraying department from storage tanks and led to the atomizers thru a flexible hose. From thirty-five to sixty pounds pressure is used. Each piece of terra cotta is sprayed individually on a table. (Note the portable overhead carrier in the left foreground of Fig. 2, which has delivered the terra cotta to the sprayers.)

The methods used in the various plants for the production of granite effects—which are based on a series of superimposed spottings—are very unique and ingenious in some cases, while in others the method is simplicity itself, but the results are generally the same.

The method of slip and glaze preparations, composition and application varies with the different concerns, still, here again they are all producing practically the same kind of finished material.

POINTS TO BE WATCHED IN SPRAYING

Before spraying the ware all dust should be blown from the pieces, as it will interfere with the proper adhesion of the slip or engobe. If pieces are chipped or corners damaged in the dry state before firing, they can be repaired quite successfully by using grog that has passed thru No. 40 to No. 60 mesh sieves and mixing same with engobe or underslip to the proper consistency for patching. There will be very little shrinkage to this kind of a patch and

after smoothing it off and drying the piece can be sprayed and fired, apparently no worse for the minor repair.

It is more difficult to repair damaged pieces after firing, but there are methods in use which are quite satisfactory.

KILNS

After the material is sprayed, the next operation is the setting in the kilns. Muffle kilns are used entirely for burning terra cotta. In this type of kiln no flame comes in direct contact with the ware, but is confined in the flues around the kiln, under the floor and in the center stack, if the kiln has one.

Here, too, we meet with many types of muffle kilns, all performing the same kind of work. The muffle in which parallel upright flues are not inter-communicating laterally offers the most favorable type for economy in repairs and for safety from leaks which admit flame and damage the terra cotta.

In firing a terra cotta kiln the heat must be raised gradually and the steam allowed to escape from open ports in the crown of the kiln until the contents is a cherry red, when the ports are to be sealed. Then firing may proceed rapidly until the finish of the burn, at which time it is safe to pull the fires and allow the kiln to cool, provided no openings are made which allow air to penetrate directly into the muffle, except perhaps that the steam ports may be opened slightly for an hour or so at the very finish of the burn in order to insure good oxidation thruout the kiln.

SETTING TERRA COTTA

It might be well to describe at this point the method of setting a terra cotta kiln for the benefit of those not acquainted with this process. The pieces are placed one upon the other to a height of about three feet. Starting from the floor of the kiln, portable tables made of burned refractory clay are used to carry the terra cotta. The legs of the tables are blocks about one foot high by six inches square, or of corresponding proportionate dimensions, and the tops of the tables are fire-clay slabs about 2½ feet square and 2½ to 3½ inches thick.



Fig. 1. Pressing and Finishing Terra Cotta. View Showing Presser Putting the Last Handful of Clay into the Mold on One of the Partitions of the Piece

After the ware has been set two to three feet high a row of these portable tables is laid, the first set being supported by the floor of the kiln and the uprights placed between the pieces of terra cotta at proper intervals. Complete kiln floors are thus formed one above the other at about three-foot intervals. In this manner the ware is set on these stands or bearings, as these portable floors are



Fig. 2. The Spraying Department. This Picture Illustrates a Typical Method of Spraying Terra Cotta

called, until the top of the kiln is reached. See accompanying sketch, Fig. 3. The kiln here shown in plan and section has no center stack. Ordinarily, large kilns have center stacks, but there are some plants where the center stack has been advantageously eliminated.

The kilns being of the muffle type makes double doors necessary to provide flue space for proper circulation of heat and draught.

Great care must be exercised in setting terra cotta, as too much weight on a piece or an uneven bearing will cause it to twist or warp in firing. Gray or unglazed terra cotta is set on sand, which is also used between the pieces to prevent their sticking together. In some plants sand is also used for a bearing surface under glazed terra cotta and between the pieces as well, but this practice is not as safe as using small pats or wads of clay under the pieces of glazed ware, as sand is apt to pop in firing or in other ways settle on the glaze when in a molten condition and cause unsightly spots which may, in some cases, ruin the piece.

FIRING

The watersmoking pyrometer is essential, in the writers' judgment, to good terra cotta burns, as it is thru the dark, uncertain, or watersmoking stage of the burn that we need our best information regarding kiln progress. If too rapidly steamed, gray or buff terra cotta will come from the kiln discolored or pink, and glazed ware may be pinholed or blistered, besides coming "off color." The watersmoking pyrometer is used up to from 1,400 to 1,600 degrees Fahr., and the best rate of advance to this temperature determined for each individual plant will result in better ware, less loss and fewer of those superintendent, head burner or chemist "inquests" so often held around a pile of defective ware.

When the contents of the kiln once reaches a good cherry red (1,400 to 1,600 degress Fahr.) firing may proceed rapidly, if the heat advances uniformly, with no danger to the ware.

In the writer's experience he has not found the high temperature pyrometers as foolproof, reliable or rugged as the base metal couples used for securing lower temperature data.

Cones are, in my opinion, reliable guides for firing terra cotta and when used in conjunction with the water smoking pyrometer give all the necessary information regarding the burn.

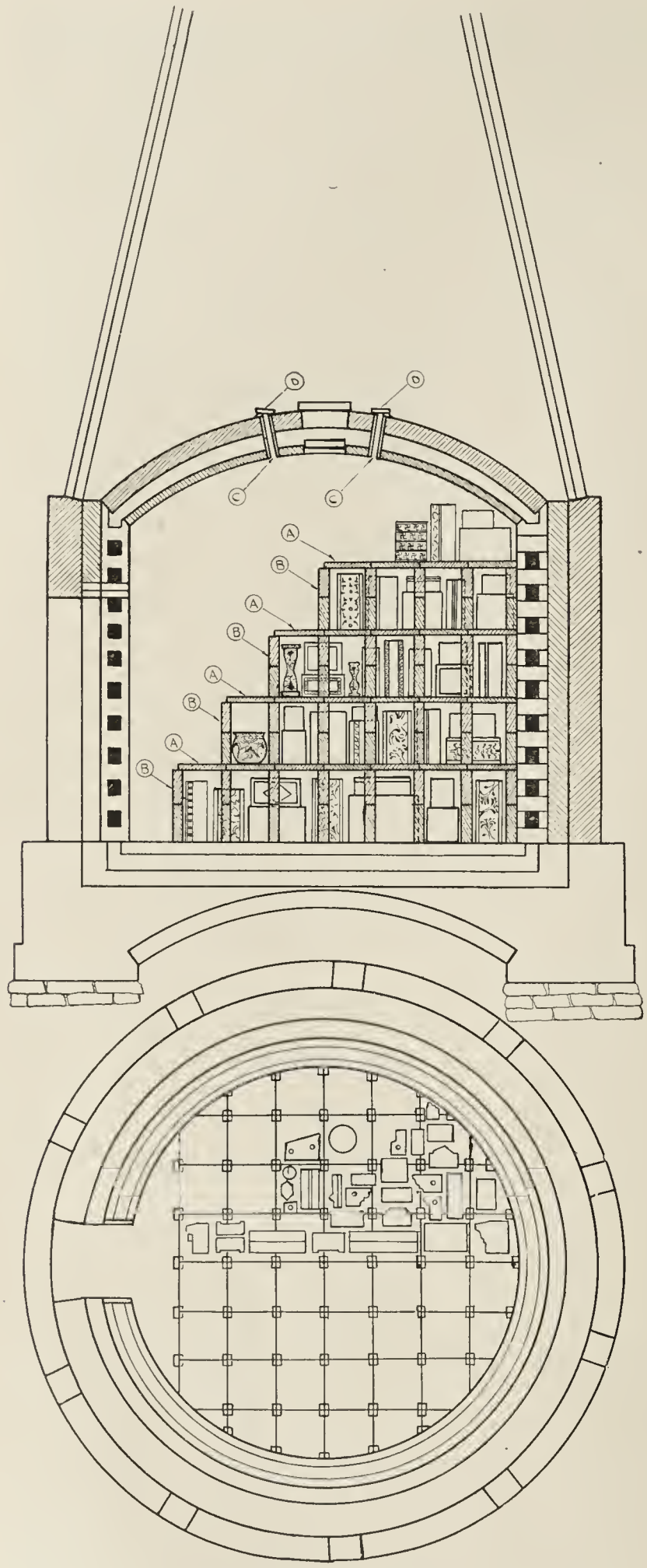


Fig. 3. Terra Cotta Muffle Kiln in Plan and Cross Section. A—Fire Clay Slabs or "Table Tops"; B—Fire Clay Blocks or "Legs," A and B Constitute What are Commonly Called Stands or Bearings; C—Steam Ports, and D—Covers with Which Steam Ports are Sealed

Jersey Shipping Facilities Again Discussed

Further action has been taken by the Monmouth Manufacturers' Association of the Raritan river district, New Jersey, for better freight transportation facilities. At a recent meeting of the association the chairman of the transportation committee was instructed to address another communication to Superintendent Berry of the New York and Long Branch Railroad, asking if any steps had been taken toward correcting the complaints made in a previous letter and calling particular attention to the approach to the freight station, as its condition will become worse during the bad weather of the spring.

The difficulties resulting from the narrow free delivery limits of the express companies in Keyport were discussed and the secretary of the association was instructed to write the secretary of the Perth Amboy Board of Trade regarding the limit of the express deliveries there and to obtain from the members of the association an estimate of their express business, from which the association would be able to formulate some plan for obtaining an extension of the limits from the express companies.

The association also took action on legislation pending in the state capital.

John Fritzinger, superintendent of one of the National Fireproofing Company's plants, who is president of the Monmouth association, pointed out that the freight transportation question is a serious one for clay mine operators in the Raritan river district. He reported trouble in shipping and receiving freight.

Freight Tariff News from Washington

The Interstate Commerce Commissioners have granted application No. 10984 of the Missouri Pacific Railway Company, which asked for authority to establish a rate on paving brick, carloads, minimum weight marked capacity of car, except when loaded to full visible or space carrying capacity, when actual weight will govern, from Coffeyville to Beloit, Kan., via its longer interstate route, the same as the rate contemporaneously in effect on like traffic from and to the same points via the more direct intrastate lines; and to maintain higher rates to intermediate points, provided that the present rates to the said intermediate points shall not be exceeded.

The Chicago, Burlington and Quincy Railroad Company has been denied application No. 94 by the commission which asked for authority to continue rates on brick, carloads, and articles taking the same rates, between St. Paul, Minneapolis, Minnesota Transfer, Hastings, Stillwater and Winona, Minn., and La Crosse, Wis., on the one hand, and Des Moines and Indianola, Ia., on the other hand. The application was refused, "sufficient justification" not having been shown.

Streator (Ill.) Drain Tile Plant Sold

The large plant of the National Drain Tile Company, located at Streator, Ill., was recently taken over by a new company incorporated under the name of the Streator Drain Tile Company. The officers of the new concern are Charles H. Williams, president; E. C. Kline, vice-president; John F. Morris, secretary, and W. C. Jones, treasurer. In addition to being secretary of the company, Mr. Morris will also act as general manager. James A. Reeves, who was salesmanager for the National Drain Tile Company, will continue in that position with the Streator Drain Tile Company, which will maintain its headquarters in its home city. The stockholders of the new company are Charles H. Williams, John F. Morris, M. C. Purcell, James A. Reeves, E. C. Kline, A. S. Johnson and W. C. Jones.

COUNTING *the* COST

The Last Short Talk on Cost Keeping by This Author, in Which He Testifies as to the Success of the System He Has Been Describing

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company,
Uniontown, Pa.

A COKE OPERATOR in the Connellsville (Pa.) district is reported to have been telling how cheaply he could manufacture coke. Upon being questioned by other operators, he gave his figures for the various elements of the cost, but in response to their asking why he included no charge for the coal itself, he stated that it did not cost him anything—*it was already paid for!*

Similarly, brick manufactures seem to feel that no charge for buildings, machinery and clay deposits are necessary —they are all paid for.

In the previous installment it was shown how we could secure in convenient tabulated form the operating charges for each month, affording a rough estimate of the corresponding costs. To get a satisfactorily close estimate one must take into consideration the inventories at the beginning and the close of the month, together with a proper monthly charge for taxes, insurance and such items which otherwise would fall in a lump sum in some particular month. For example, a sale of scrap iron might more than cover the charges to "Repairs" for the month, making an apparent credit which the initial and final inventories would automatically correct.

There should also, of course, be a charge for depreciation.

Where only one kind of brick are made during the month, the accompanying form (No. 3) is convenient, the cost per thousand being based on the output less a safe percentage to cover breakage.

Where labor saving office devices are used, it is possible to simplify these forms considerably by using black and red ink to distinguish between debits and credits, so that one can get along with only half the number of columns.

MULTUM IN PARVO

This system in its present state is like a certain popular type of automobile—it will take your anywhere you wish to travel along the highways and byways of cost finding, and at the same time it can be equipped with all sorts of appliances the better to direct the future course and to mark the past.

The writer employs it in connection with fire, paving and silica brick plants, clay mines, coal mines and silica quarries. By running the labor costs thru an additional screen one can tell the relative labor costs for hand molded, stiff-mud machine, soft-mud machine and power repressed processes. These developments are, however, beyond the scope of an elementary discussion of costs.

WHEN TO BEGIN

Before installing this system some years ago, the writer studied it out in every possible way, knowing that it would be difficult to discard it and to rewrite all the accounting during the trial period if necessary to go back to the former system.

Failing to foresee any defects, it was installed in the

(*Continued on Page* 474.)

Form No. 3 **JANUARY, 1917**

	Inventory Jan. 1	Operating Charges	Inventory Jan. 31	Net Cost	Cost Per M
a. Superintendence					
b. Direct Labor					
c. Indirect Labor					
d. Raw Material					
f. Fuel					
etc.					
Taxes					
Insurance					
Depreciation					
etc.					
Total					

COST ACCOUNTING *for the* CLAY PLANT

Tables for Recording the Production of the Drying, Setting and Burning Departments Are Included in This Installment of the Uniform Cost System

By A. J. Huac

CONTINUING THE PRESENTATION of the production tables, in connection with the complete and uniform cost accounting system which is appearing from issue to issue in the columns of this magazine, Nos. 26, 27 and 28 are offered in this installment.

PRODUCTION—DRYING

This table is easily understood. We keep a record of drying production, partly in order to arrive at the percentage of drying loss. Many plants using tunnel dryers, or waste heat systems with tender clays have large losses, at times, in drying. Of course, this entails a monetary loss at the dryers, and it has been found that an increase in dryer loss will almost always predict an increase in kiln loss in the same ware. Moreover, dryer loss at times reduces the output of the plant. For these reasons we have arranged the table in this way. We must also arrive at the tonnage dried, and do this in line No. 42.

PRODUCTION—SETTING

This table needs no explanation. It is simply a list of the ware set each day and proper information given for reducing this information to total tons.

For daily and monthly records we use columns I to VI. Columns VII to XIII can be used when kilns are finished. They are superfluous to this system, and are added simply to give a record of kilns and contents in a convenient form. Practically every plant must keep a record of this

Table No. 26—PRODUCTION—DRYING **January 1916**

Line No.	Date	Post From	Column No.	Class A In I	Class A Out II	Class B In III	Class B Out IV	Class C In V	Class C Out VI	Class D In VII	Class D Out VIII
1	1	Reports				Continue for balance of five classes for January, and duplicate for remaining months.					
2	2										
3	3										
4	4										
5	5										
6	6										
7	7										
8	8										
			One line for each day in month								
24	24	Daily									
25	25										
26	26										
27	27										
28	28										
29	29										
30	30										
31	31										
32			Total								
33			On hand First of Month								
34	(32+33)		Total								
35	("Out" Col on line No. 32)		Deduct Taken Out=Dryer Output								
36	(34—35)		Balance								
37			On hand Last of Month								
38	(36—37)		Balance equals loss								
39	("In" Col. on line No. 32 divided into Line No. 38)		Loss Equal Percentage of Total Put In Post Line No. 39 to T16-12								
40			Tons Per 1000 Each Class								
41	(40×35)		Tons Each Class								
42	Total of all items on No. 41		Total Tons This Month All Classes Post Line No. 42 to T5-6								

TABLE NO. 27—PRODUCTION-SETTING

				JANUARY 1916													FEBRUARY 1916
				Set Daily						Finished Set Daily, Kiln No. and Contents							
Line No.	Date	Post From	Column No.	Tons I	Class A II	Class B III	Class C IV	Class D V	Class E VI	Tons VII	Class A VIII	Class B IX	Class C X	Class D XI	Class E XII	Kiln No. XIII	
1	1																Duplicate for February and remaining months.
2	2																
3	3																
4	4																
5																	

One line for each day in the month

	26																
27	27																
28	28																
29	29																
30	30																
31	31	Daily Reports															
32			Totals														
33			Tons Per 1000 Each Class														
34			Tons Each Class														
35		(32x34) (Total All Col. on34)	Total Tons All Classes Post Line No. 35 to T6-5														

Table No. 28—PRODUCTION—BURNING

Line No.	Date	Post From		JANUARY, 1916 Tons	Class A	Class B	Class C	Class D	Class E	Kiln No.	Tons	
			Column No.	I	II	III	IV	V	VI		VII	(Duplicate for February and remaining months)
1	1											
2	2											
3	3	Reports	Burnt daily and contents									
4	4											
5												
			One line for each day in month									
	27											
28	28											
29	29											
30	30	Daily										
31	31											
32			Totals									
33			Tons Per 1000 Each Class									
34	32×33		Tons Each Class									
35			Total Tons All Classes									
			Post Line No. 35 to T7-6									

kind, and it is easier to keep it here than have a separate form for it.

PRODUCTION—BURNING

The lines on this table are identical with those of the preceding table, No. 27. The columns are arranged so that when a kiln is burned the contents can be posted to their proper places.

Since the nature of the business requires that almost always one or more kilns will be partly burned the last of one month and finished the first part of the next month, we must arrange some method of dividing this cost. Our method is to divide in proportion to the number of hours on full fire. If we started full fire on a kiln at 6 A. M., January 30th, and finished it at 3 P. M., February 1st, we would credit January as having burned seventy-four per cent. and February twenty-six per cent. of the contents. This can be figured separately and added on the date of the thirty-first. When the kilns are finished the first part of the next month, the balance of the contents can be credited. When it is desired to figure up this table before the kiln in question is finished, the hours for full fire can be estimated.

An Echo from the Canadian Convention

Due to an unexpected difficulty in arranging for the transcription of stenographic notes, the complete report of the Canadian National Clay Products Association, which we promised our readers would appear in the last issue, "Brick and Clay Record" is still without sufficient information to elaborate greatly upon the report published in the January 30 issue. The report gave a cursory outline of the proceedings of this most successful gathering and announced the results of the election of officers to serve for the coming year, besides giving the names of those men who had been chosen to serve as directors for the next twelvemonth. In announcing the names of those chosen to serve as directors, the name of G. A. German was, thru an error, omitted.

As outlined in the January report, the meeting was opened with a prayer by Reverend D. Drummond, following which the delegates received a very hearty and cordial welcome to Hamilton by the city's mayor, Charles G. Booker, and by the committee which had provided so well for the entertainment of the delegates during their attendance at the convention.

COMPRESSION CLASSIFICATION OF BRICK RECOMMENDED

Following the addresses of the association's president, J. E. Frid, and its secretary-treasurer, Gordon C. Keith, which showed that wonderful progress had been made by the association and that its finances were in a very healthy condition, A. F. Greaves-Walker, who, as it previously was announced, was elected to head the association for the coming year, read the report of the technical and educational committee. The recommendations made by Mr. Greaves-Walker to the city architect of Toronto for the new building by-laws regarding the classification of brick according to their compressive strengths, which were not available at the time the previous report was written, are as follows:

Class "A"—All brick testing over 4,290 pounds per square inch.

Class "B"—All brick testing over 2,860 pounds per square inch and under 4,290 pounds.

Class "C"—All brick testing under 2,860 pounds per square inch.

A list of the papers read at the convention, and their authors, includes some very interesting subjects, such as "Success in a One-horse Tile Yard," by Jack Minor of Kingsville; papers on pyrometry by J. P. Goheen of Philadelphia, Pa., and James De Oven of Toronto; "Clays in and Around Hamilton and the Products Made From Them," by Joseph Keele; "Clays of Saskatchewan," by N. B. Davis; "Use of Producer Gas in Down-draft Kilns," by A. F. Greaves-Walker; "Brick Manufacture," by William Loomis; "Labor Saving Devices in Soft-mud Brick Plants," by J. F. Aten of New London, Ohio; "Clay Products in Engineering Construction," by E. H. Darling, and "Industrial Training in the Clay Products Industry," by George L. Sprague of Hamilton.

(*Continued on Page* 474.)

MARKETING *the* PRODUCT

Helpful Articles and Timely Suggestions for the Dealer and the Manufacturer's Sales Force

PHILADELPHIA DEALER ENJOYS INCREASED BUSINESS AND MAKES LARGE ADDITION TO EXHIBIT ROOMS

A LITTLE MORE than three months ago announcement was made in the column of this magazine of some important changes that were taking place in the offices and business of S. B. Dobbs, a Philadelphia face-brick dealer. Mention was made at that time of some extensions that were being made in his exhibit rooms.

Knowing that the face-brick fraternity is interested in the progress and welfare of its members, a brief sketch of Mr. Dobbs' business career is given below, as well as some explanation of the changes that have recently been made in his organization and equipment.

SELLING FACE-BRICK FOR A QUARTER CENTURY

S. B. Dobbs has been in the face-brick business for a period extending over approximately twenty-five years, having maintained offices in New York, Philadelphia, Baltimore and Washington, D. C., beginning as a salesman for the Hydraulic-Press Brick Company, during which time he developed a very high quality of salesmanship and was one of the pioneers in introducing ironspot and mottled brick in the eastern market.

His ancestors for several generations were engaged in the brick business, his father having manufactured brick in New Jersey and his grandfather in England. Mr. Dobbs learned the brick business in his father's factory and managed it for several years. Twelve years ago he first launched

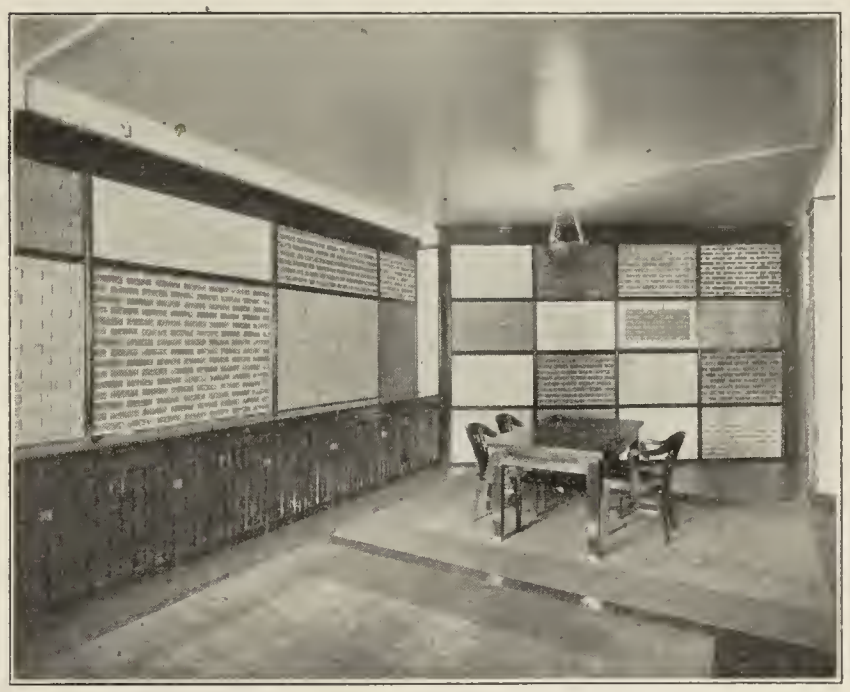


Two Walls of Panels and the Entrance to Mr. Dobbs' Private Office

his own business, securing an office in the Bailey building, 1218 Chestnut Street, Philadelphia, in which building he is still located. At that time he had one small office but in a few years the increasing business demanded another, and about eight years ago he extended his office until it embraced several rooms. Again an increase in business has made it necessary to have larger quarters and the present exhibit is described somewhat in detail herewith.

OFFICES COVER TWO THOUSAND SQUARE FEET

The suite comprises about two thousand square feet of floor space, running entirely across the end of the building. The entrance is from the corridor in the center of the suite,



Another View of the Panels Embraced in the Lower Picture, but Showing Somewhat More in Detail the Artificial Lighting Arrangement

and the lobby commands a pleasing perspective. To the left, as one enters, there are three large offices with private rooms for the manager and bookkeeper. In this department, practically all the detail work necessary in the conduct of the business is carried on. There is also a large work room in which samples are stored and packed for express and parcel post. About the walls are reference sample cases, in which are kept official samples of the lines handled.

To the right of the entrance are located the sales and exhibit rooms, and the private office of Mr. Dobbs. Upon entering these rooms one is at once impressed with the symmetry and beauty of the whole display. The rooms are finished in mahogany, with mahogany furnishings. Upon the highly polished floors are rich deep green rugs. The natural light is splendidly diffused and the artificial lighting facilities, consisting of several large indirect lights of distinctively Grecian design, add an artistic touch seldom found outside of a studio. The atmosphere is warm and inviting, bordering on the picturesque.

One is impressed by the absence of that cold, formal, commercial air of the average brick exhibit. There is a coziness and cheer about the place that makes one desire to sit down and muse.

FOUR CASES OF PANELS DISPLAY MANY BRICK

But the surroundings are incidental. The exhibit itself

is the main feature. The panel idea is observed, there being four cases or walls of panels. Exhibit "A" consists of twelve large panels, perfectly balanced in colors, with a happy co-mingling of the light and dark, the old fashioned smooth and the very latest rough-texture ideas. Exhibit "B" consists of ten large panels about four feet by five feet devoted to the display of rough-textured brick in buff, gray and red shades, in both uniform and full range assortment. Exhibit "C" consists of sixteen panels, with the full northern light, combining display of border panel effects in vari-colored smooth brick, the porcelain grays, whites and granite shades, and the old New England "Harvards." Exhibit "D" consists of twenty-one panels devoted to the display of smooth red buff and iron spot brick, also a large panel of textile brick, which is commanding considerable attention at the present time.



The Salesmen's Quarters, with an Exhibit of Twenty-one Panels on the Rear Wall and the Entrance to Mr. Dobbs' Private Office to the Right. In the Foreground and to the Left Is the Accounting Department

The furnishings of these rooms are original, a large directors' table being placed in one room, while in the others are individual desks for the sales force.

Mr. Dobbs' private office is large and furnished in harmony with the sales and exhibit rooms. About the walls are a number of large reproductions of representative buildings for which he has furnished the face-brick, with photographs of many of the factories represented. This office has a Chestnut street exposure, directly opposite the Hotel Adelphia, one of the company's silent salesmen, it having supplied nearly a million rough-textured buff brick for this structure.

In addition to this office, Mr. Dobbs maintains offices and exhibit rooms in Washington, D. C., and Atlantic City, N. J., with agencies in all of the large cities on the Atlantic seaboard.

COMPANY HAS SUPPLIED MANY LARGE JOBS

It has been the company's good fortune to furnish a great many large representative jobs in the East. Some of the more prominent are as follows: In the City of Philadelphia —The Curtis Publishing Company's Building (two and one-quarter million Kittanning brick), Lafayette Building (three hundred fifty thousand brick), Jefferson Hospital buildings (three hundred thousand brick), Adelphia Hotel (six hundred thousand brick), also the Stock Exchange Building, Lyric and Adelphia Theatres, Ritz-Carlton Hotel, West Philadelphia Y. M. C. A., Bellevue Court building, St. Patrick's Church, St. Columbo's Church, and many apartment houses and dwellings thruout the city and suburbs. Thruout eastern Pennsylvania the company has furnished representative jobs in every city—for instance, Second National Bank, Wilkes-Barre; International Correspondence Schools, Scranton; Lehigh County Court House, Allentown; Pennsylvania Railroad Station and the Y. M. C. A. at Chester. The Washington office has furnished many large buildings erected in that city in recent years, among them being the Congress Hall Hotel, Scottish Rite Temple, Hotel Harrington, and at the present time, it is serving brick on the largest apartment house ever erected in Washington—the Meridian Mansions.

The company's line comprises high-grade face-brick, enamel brick, paving and fire-brick, and architectural terra cotta. In the face-brick lines it handles the products of twenty factories and represents one of the largest terra cotta concerns in the East.

SPICY SUGGESTIONS *for the* SALESMANAGER

Most of the discussions about sales work in the brick field apply to the man who is selling face-brick, terra cotta, tile, and so forth, and very little is said about the common-brick situation. But while this is not so spectacular a feature of the market as some other items, it is nevertheless the basis of the whole industry, and is worth attention on its own account.

The contractor is the man who shines in connection with common-brick sales, for altho his hands may be tied in buying the face-brick, he is free to get his common-brick from whom he likes and at whatever price he is able to secure. The common-brick man, therefore, must devote most of his attention to the contractor, and according to many, this is a case of sticking to the buyer until he acts.

"The first thing the contractor who has landed a job does," said a common-brick manufacturer the other day, "is to arrange for his equipment and materials. He wants to assure getting the stuff on the job before he even turns a wheel in the direction of organizing his crew, because he cannot use labor without material for his men to work with.

"The man who is selling common-brick, therefore, has a cue to stick with the contractor till the cows come home, because that is the way to get the business, and the only way of which I know. The good contractors, of whom there are not so many, at that, have everybody after them, and the one who is seeking the business must be right on the job in order to land it.

"A lot of common-brick manufacturers seem to think that business will come to them without their going after it. Well, some of it does; but when you stop to think about it, the kind that you have to go after and fight for is usually most worth having."

It Pays To Be Frank

It is a far cry from the days of "Let the buyer beware" to the application of the golden rule in business; yet there seems to be no question that it pays in a definite, direct way, to treat the customer just as the seller himself would like to be treated.

For instance, the salesman who has succeeded knows that it is never good business to pretend to know things; it's too hard to keep up the pretense. Some salesmen seem to try to impress the prospect with their omniscience on the subject of brick and its uses, feeling that it would be a confession of weakness to admit that there was anything in this connection regarding which they were in the dark.

"An owner asked me a particularly hard question the other day regarding the possible range of colors in face brick," said the salesman for a leading concern in the Middle West recently. "I knew pretty well what the shades available included, as far as our line was concerned, but I didn't feel that I was fully enough posted to be able to make a definite answer.

"So I told the customer frankly that I didn't know, absolutely, but would make a point of investigating this matter and submit a report. He seemed pleased rather than otherwise with my frankness; and later expressed his sense of obligation when I presented a little report in writing on the general subject, which I had investigated not only with reference to the lines represented in our office, but to the market as a whole.

"I have not received his business yet, but he has made it clear that he is prejudiced in my favor, because I did not pretend, on the one hand, to know it all, nor to dodge the work and trouble of digging up the special information in which he happened to be interested."

Motor Trucks as Sales Aids

"Service," declared the salesmanager of a big brick concern not long ago, "is nine-tenths delivery."

His idea was that if the brick company gets the material on the job when it is wanted, it has met most of the requirements of service imposed by the contractor and owner; and that is just about right.

From this standpoint, the motor truck seems to have an incidental value which is entirely apart from the work which it actually does, and for which it was bought. That is to say, the concern which is using trucks for delivery is advertising its desire and ability to render service in the form of prompt deliveries.

These things are noticed, and in a large city where it is sometimes difficult to keep up with all of the prospects, it is comforting to know that the sales message of the manufacturer is being carried to all parts of the community by means of the truck. For this reason, manufacturers often pay a great deal of attention to the color scheme used in painting the truck, so that the name of the company will stand out just as prominently as possible.

While on the subject of delivery outfits (their appearance and the service they render have a definite bearing on the sales situation, remember), it is worth mentioning that the brick man who is using wagons and teams and harness which are not in the best of condition is running the risk of having customers assume that his product is in keeping with them. It is not good publicity and it is not good business to neglect the appearance of the delivery equipment. This is a small matter, of course, but business success is built on such things as this.

Setting a Good Example

In a certain prosperous community in the Ohio Valley there is a brick manufacturing concern which is located on the outskirts of the city. It has an extensive plant, and sells its product without much more exertion than is ordinarily required. The office of the concern is in a small *frame* building—little more than a shanty—facing the street. Over the top of the building is a sign bearing the words, "Jones Brick Company." Those in charge of the business see nothing inconsistent in the character of the building or its use.

Four blocks away from this yard is the saw mill of an important lumber concern. This company has a handsome *brick* office building, with a red tile roof. It is also in the industrial district, with comparatively few people to influence, from the publicity standpoint; yet it has chosen clay products as the material for its office building, altho it sells lumber, while the brick man a little way off, is advertising wood as a building material by using it in his office structure.

Here are two cases of apparent inconsistency on the part of business men, yet the lumberman has the better reason for his use of brick than the brick man for using wood. The latter, obviously, can merely suggest the reduced cost of the building, while the lumberman, who carries a stock of material on his yard, is able to reduce his fire insurance rate—another tribute to brick—by having an office building the "exposure" from which is less than it would be from a frame building. He can pile his lumber closer to the office, and thus secure greater use of the yard space than would be possible otherwise, under the rules of the fire underwriters, without a penalty being inflicted thru an additional charge in the rate.

The brick man who, in order to save a few hundred dollars, is using a structure of some other material for office purposes is overlooking an opportunity to suggest to the public the fact that he believes in his own materials. It is very much as tho a life insurance man were to solicit business while at the same time admitting that he did not carry a cent of insurance on his own life. He may be able to sell others—but he loses the convincing argument that comes with actual test of his own product or commodity.

Coal dealers and others who ordinarily do not pay much attention to their yard office buildings are coming around to the idea that it pays to have substantial, attractive structures of this kind, and to use brick rather than some other material selected merely for its low cost; and if business men in other lines believe in brick, surely the brick man, from the selfish standpoint of promoting his own trade, ought to use the incidental publicity which comes with the utilization of the product for his own buildings.

Does not that seem like a logical proposition to you?

Moving Brick Buildings

One of the advantages of brick construction, which is not always appreciated, is that a building of this type can be moved with comparative ease. Some large structures, such as apartment buildings, have been transported considerable distances at various times, and nothing is thought of moving buildings of moderate size from one site to another.

This is a feature which was formerly attributed exclusively to frame construction, and the fact that brick lends itself just as readily to the necessities of changes in location is just one more proof of its adaptability. Of course, no owner puts up a building with the expectation of moving it, and this seldom enters directly into the consideration of the desirability of a product; yet it is a feature worth while, after all.

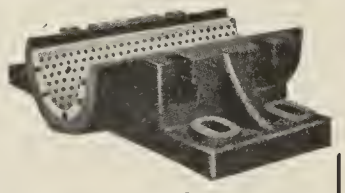
Showing what can be done along this line, the Jacob Best Coal Company of Chicago, located on North Broadway, has a very attractive two-story brick office building, which faces on Broadway, and is regarded as an exceptionally fine building of its kind. The second floor is equipped as an apartment, and is used by the yard foreman. Mr. Best explained not long ago that the building was formerly at the rear of the lot, having been erected by the former owner for use as a stable, and that he had moved it with no special difficulty to its present position, where, with a few minor changes, it was converted into an extremely handsome and desirable office building.

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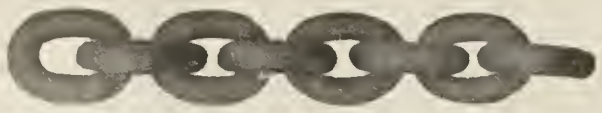
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The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

PENDING THE OUTCOME of our present strained diplomatic relations with the Imperial German Government, the building industry of the United States is marking time. Altho there has occurred no reduction in the current prices of materials, but rather, in fact, a marked tendency in the opposite direction is being manifested, there are many who but a month ago foresaw nothing but the most optimistic conditions in store for construction work. These are now suffering a revulsion of feeling with a strong tendency toward pessimistic opinions regarding the immediate future of building activity.

Coupled with the retarding influence of complicated foreign relations are recurrent freight embargoes and the acute coal and gas situation. Another grave consideration is that of the continual decrease of available labor, with the possibility that this will be made more aggravated by the discarding of shovels and the shouldering of muskets by a large number of United States' citizens.

However, reports of constructional work both underway and in the development stage in approximately 125 cities since the first of the year, indicate that there is already a large demand for building materials.

NEW YORK COMMONS STIFFEN IN PRICE

In the city of New York and its suburbs the excessively cold weather has very effectively dampered early building operations. There is, however, apparent in the eastern metropolis a tendency toward advanced prices in certain building materials. Common brick has experienced a stiffening in price, in spite of the fact that very little has been ridden to jobs during the past two weeks, on account of the cold weather. This increase in price is due to the fact that the Hudson river is frozen over so completely at Haverstraw that it will probably be a month before boats will be able to navigate the stream. No more arrivals from up the Hudson are expected for a month or six weeks. Hudson river commons are quoted from $9.00 to $9.50, wholesale, and there are only about six million available for immediate use. The building reports from New York suburbs and nearby cities and towns indicate plenty of new building in view, altho all points have suffered during the past few months from severe winter weather.

A very similar situation exists at Boston, Mass., where building operations have been checked by cold and stormy weather. The outlook in Philadelphia is said to be exceedingly encouraging. Despite the continued low temperatures at this point, building remains active for this period of the year, and estimators are busy on bids for a large amount of proposed brick.



PITTSBURGH NINE MILLION BRICK BEHIND ON ORDERS

Jumping over to Pittsburgh, we find a condition prevailing whieh has never been experienced by brick manufacturers and dealers at that point before, and which is causing them mueh annoyanee from eontractors and bricklayers. It is understood that, at a recent meeting of the brick interests at that point, where trade eonditions were diseussed in a most thoro manner, it was ascertained that the entire stock of building brick on hand is slightly over four million, while the orders on file waiting for prompt shipment total thirteen million. Recent action taken by gas eompanies in Pittsburgh, in shutting off the gas supplied for mill and factory purposes, erippled the operation of many plants for several days. Here, as elsewhere, the shortage of ears constitutes a very menaeing problem and is undoubtedly one of the factors responsible for the present high price of materials.

NEW FACE BRICK SCALE FOR CLEVELAND

Inability to secure quick shipments of eoal at Cleveland, Ohio, is embarrassing the brick manufacturers at that point. New standard prices on faee brick have recently been put into effect at this point, the future figures for eity deliveries being $23 a thousand for rough-face shale brick and $22 a thousand for all smooth shale faee brick. The carload priees for these brick are $21 a thousand for the rough-face brick and $20 a thousand for the smooth. The new seale of prices has been adopted by all the building supply concerns in the "Sixth City" and the standardization, which is undoubtedly working to the advantage of the material interests, has been well received by the contractors. The continued cold weather has put a quietus on building operations, both large and small, but, with the warming up of the weather, eontractors will shortly be shooting in their orders for materials.

If the priee of coal were stable and the supply of cars sufficient to meet the demands made by briek manufaeturers in the Louisville (Ky.) district, eonditions at that point might be said to be highly satisfactory. Orders are being received faster than they can be taken care of, and plants are running to capacity in preparation for the large amount of shipping that will come with the spring. Prices have risen to a point where business can be handled at a profit, and, onee politieal and international eonditions are settled, and the railroad situation improved, there should be a large amount of construetion work in spite of the prevailing high cost of labor and materials.

PACIFIC POINTS MAKE HUGE GAINS

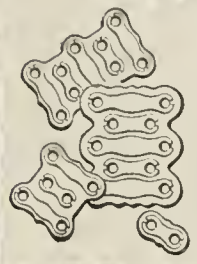
Weather conditions on the Pacific eoast are such that in a few seetions open-air brick plants have not resumed operations, but the majority of plants are now working to full capacity. A very encouraging condition in this section is reflected in the building permits issued during January, which show a marked gain over those issued during the same month last year. The percentage of gain ranges all the way from sixty-five per cent. in San Francisco to two hundred per cent. in Los Angeles. The largest Pacific coast gain was made at Los Angeles, where the total valuation of building permits was $4,709,724, as compared with $1,678,724 during January, 1916. San Francisco permits totaled $1,622,400, or a quarter of a million dollars in excess of 1916's figures.

The demand for sewer pipe on the nation's western coast has naturally been slow during the months of January and February, owing to the large amount of precipitation generally experienced at this time. Terra cotta and face

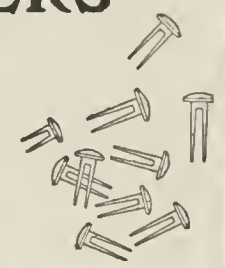
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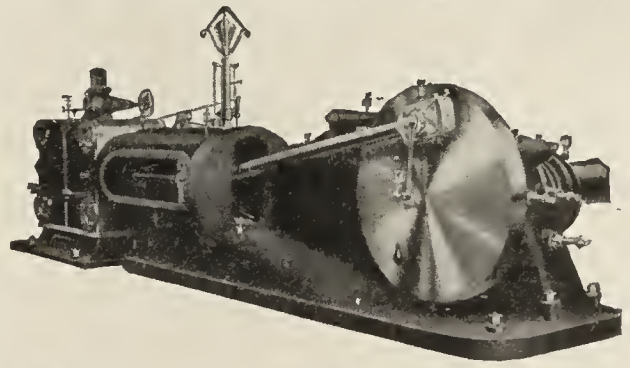


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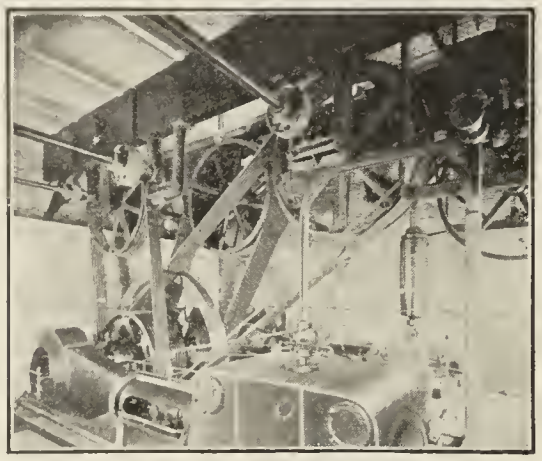
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Special Price on Babbitt for Brick Plants

brick manufacturers are looking forward to a demand that will force them to work their plants to capacity, basing their predictions particularly on the activities in interior sections, where many large country homes are being planned. The past year has been a prosperous one for the California farmer, and he is putting much of his profits in permanent improvements.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

H. H. Camp of the Camp Conduit Company, Cleveland, Ohio, and Mrs. Camp, have left for Florida, where they will remain until the end of winter.

Stephen D. Horton, president of the S. D. Horton Fire Brick Company at Peekskill, N. Y., died at the age of seventy-nine years, at his home in that city on February 11. General debility is said to have been the cause of his death.

W. A. Fay of the Cuyahoga Builders Supply Company, W. T. Rossiter of the Cleveland Builders Supply Company, J. A. Jerka and W. P. Hurst of the Lake Erie Builders Supply Company, were among the Cleveland (Ohio) representatives at the National Builders' Supply Association convention, held in Chicago recently.

Frank McElroy, president of the recently incorporated St. Clair Brick Company of Detroit Mich., and a member of the city controller's staff, is a candidate for alderman of the fourth ward of that city. Mr. McElroy has enjoyed much success as a public figure in Detroit and tossed his hat in the aldermanic ring after the death of Alderman Maurice Keating created the vacancy.

W. J. Watkins of Louisville, Ky., president of W. J. Watkins and Company, dealers in building materials, is ill, suffering as the result of a heart attack sustained during the second week in February. Mr. Watkins was on the street at the time he was stricken in company with his son-in-law, E. B. Dye. Mr. Dye carried him into a store and later he was removed to the home of Mr. Dye. Mr. Watkins is reported as much improved.

Nicholas Hogan, a pioneer brick manufacturer of Peoria, Ill., died at his home in that city on February 11, after an illness of ten days. Mr. Hogan, who had attained his eighty-seventh year, was born in County Waterford, Ireland, in 1830 and immigrated to the United States while but a young boy. He has been a resident of Peoria for seventy-five years, and altho retired, was known by many of the older clay products manufacturers of the state.

Two recent visitors at the offices of "Brick and Clay Record" were E. and W. Beutler of St. Cloud, Minn., who are making an extensive trip thru the Middle West, visiting a large number of clay products manufacturing plants in that section. Both men are sons of, and associated with, Ernest Beutler of the Beutler Brick and Tile Works, lo-



cated at St. Cloud. This company is contemplating the erection of a new thirty-foot round down-draft kiln in the spring, as well as a tunnel dryer.

One of Pittsburgh's prominent face brick salesmen has left that field for pastures new. R. O. Cosler, who for some time past has been associated with the Darlington Brick and Mining Company, whose plant is at Darlington, Beaver county, Pa., has accepted the position of manager of the brick department of Frederick B. Stevens, Detroit, Mich. The trade thruout the Pittsburgh district will be sorry to know of Mr. Cosler's departure from their midst, but are gratified to learn that the position obtained is one of much importance. The best wishes of his friends follow him in his new work.

S. C. Peebles, vice president and general manager of the Peebles Paving Brick Company, Portsmouth, Ohio, resigned his position with that company to accept the office of general manager of the Ashland Iron and Milling Company and the Ashland Coal and Iron Railway Company, both of Ashland, Ky., to become effective March 1. Mr. Peebles will, however, still retain the office of vice president and director of the Peebles Brick Company. F. L. Manning, who needs no introduction to the brick manufacturing fraternity, having been actively connected with the Peebles company for a number of years, has been elected to succeed Mr. Peebles as general manager.

Alabama

The Southern Sewer Pipe Company at Birmingham, Ala., is rapidly completing its new sewer pipe and other burned clay products manufacturing plant, which replaces that destroyed by fire in 1914. W. R. Leighton is manager of the Southern company.

California

Fire recently damaged the plant of the Standard Brick Company at Colton, Cal., to the extent of $1,000 when the wood supports of the metal roof were burned.

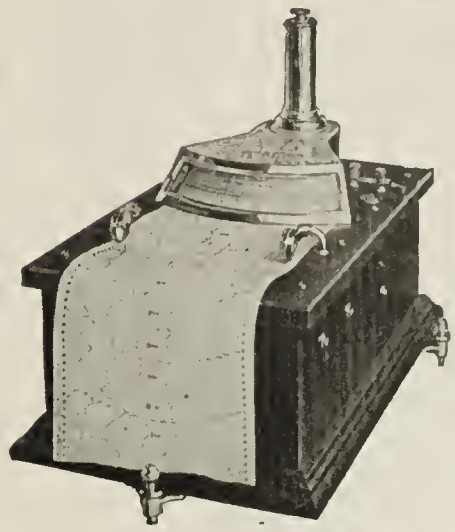
It is reported that the Products Development Company will soon build a large pottery plant in conjunction with its sand and gravel plant at Ione, Cal. Olif Nilson will manage the new enterprise.

An order of ten cars of brick was recently shipped by the Pioneer Brick Company of Visalia, Cal., to Coalinga, Cal., where they will be used in constructional work at the Kern Trading and Oil Company's plant.

F. R. Turton, San Francisco, Cal., representative for the Refractory Magnesite Company of Ione, Cal., practically has been given a six months vacation. This concern has so many orders on hand that announcement has been made that no new business can be handled until July or August of this year.

The Long Beach (Cal.) Brick Company is shut down for repairs and will reopen in March. New machinery is being installed and a change is being made in the drying system. Harry Havner has succeeded J. T. Parker as manager of the Long Beach Company, and E. Young has taken the place previously held by J. J. Chamberlin, as yard foreman. Mr. Chamberlin is now associated with the Los Angeles (Cal.) Brick Company.

A new brick plant is to be established at Kings City, Cal., by Bond and Avery, who have closed contracts for the leasing of several hundred acres of land. How this factory came to be established at Kings City makes a rather interesting story. Several months ago the barn on land owned by one of the new proprietors burned



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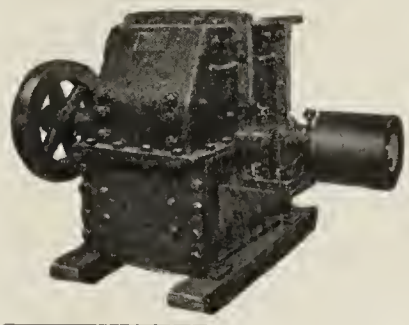
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It cuts down your running expenses by using less power to do your work.



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INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

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have not only eliminated all belt slipping, but they have also found a way to prolong the life of their belts.
Thus, if you use "SERO" you will make a double saving; and remember, too, "SERO" does not gather dust.
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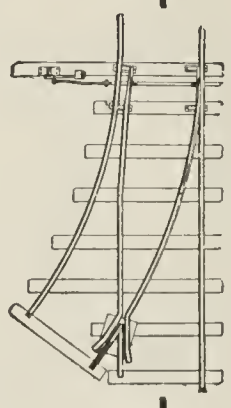
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down and the baking of the adobe on which it was situated gave the owner the idea of turning out brick in commercial quantities. Both men were former brickmakers who had retired to farming, but circumstances have brought them back to their original vocation.

Many California cities have been forced by the large volume of building during the past few months to modernize their building laws. The most drastic of these moves is that proposed in Los Angeles, the adoption of which would lead to the condemnation of many downtown structures. The proposed measure would lower the height of class B structures from a maximum of eight to seven stories; class C from six to five stories; class D from four to three stories, and class D structures would be limited to two stories when used for hotel or lodging house purposes. The Building Owners Association and the Los Angeles Realty Board are opposing this law. A new building code has been framed for Sacramento, Cal., and is being supported by the Sacramento Builders Exchange. A similar measure is being backed in Stockton by the Stockton Association of Architects. Santa Barbara recently adopted an amendment to her building regulations which prevents the erection of adobe houses in certain sections, and a new building measure for San Jose is being framed by W. D. Whitehead of that city.

Connecticut

Henry S. Tallard, who holds a lease on the Berlin (Conn.) Brick Company's plant, is considering a renewal of the lease which expires April 1.

One hundred and eighty shares of stock in the Tuttle Brick Company of Middletown, Conn., the par value of which is $25 per share, were sold at auction recently for $125 per share. The sale was held by order of the probate court to settle the estate of the late Willis W. Tuttle of Middletown and the stock was purchased by Wallace M. Tuttle, a brother of the deceased.

Georgia

The Southern Refractories Company, controlled by the Pennsylvania and Kentucky Fire Brick Company of Bolivar, Pa., will be organized with a capital stock of $150,000. It has acquired plants at Mission Ridge, Ga., and Fort Payne, Ala. The headquarters of the new concern will be located at the latter place.

The offices of the Standard Brick Company of Macon, Ga., have been moved from 416 Cherry Street around the corner to 417 Broadway. A huge twenty-four foot "Build With Brick" upright electric flasher sign has been installed at the new location, and makes it extremely easy to locate the company, besides conveying the message of permanent building in a most impressive manner.

Illinois

The Continental Brick Company of Aledo, Ill., according to a recent report, has been dissolved.

The Jointless Fire Brick Company is the name of a newly incorporated concern at Chicago, Ill., capitalized at $2,500. William A. Schaefer, William A. Schaefer, Jr., and Albert Goetz are the incorporators of the company.

Preparatory to placing its big plant in operation, the Purington Paving Brick Company of Galesburg, Ill., is stripping and preparing its clay bank. F. G. Matteson, president of the company, predicts that the plant will commence operations the middle part of March or the



first part of April, which will make the winter shutdown this year shorter than usual.

The Nicholson Clay Manufacturing Company, located in the Monadnock block, Chicago, which purchased the Ray (Ill.) Tile Works last summer, has completely rehabilitated the plant. New machinery has been installed and the capacity appreciably increased. For the present a daily capacity of seventy-five tons is being maintained, which consists wholly of drain tile.

Indiana

The McRoy plant of the National Fireprooling Company at Brazil, Ind., have given one hundred and fifty employes an increase in wages of twenty-five cents a day, effective the first of the month.

At a public sale held recently the tile factory, located about one mile north of Winchester, Ind., was sold to Clarence Mullen. The consideration was $2,250. Mr. Mullen has not yet made known what he intends to do with the plant.

The fan room at the Martinsville (Ind.) Brick Company's plant was damaged by fire recently, causing a loss estimated at $200. All of the frame work was demolished and the engine was damaged slightly. The origin of the fire was not detirmined.

The large plant formerly owned by the Industrial Brick Company, just a few miles west of Mt. Vernon, Ind., was destroyed by fire a few weeks ago. The plant was dismantled about a year ago but all of the machinery had not been removed. The loss, it is said, will be several thousand dollars.

The second voluntary increase was recently granted to the employes of the McRoy Clay Works of Brazil, Ind., on February 3, when twenty-five per cent. more than the usual amount was placed in their pay envelopes. A bonus system of sharing has also been decided upon by the company, which will go into effect at once. The bonus is to be based upon the quality and increased tonnage of ware manufactured each month, and is quite similar to that being adopted by many other clay products manufacturing plants.

From Chrisney, Ind., comes the report that inexhaustable supplies of pottery clay have been found inside the town limits and thereabouts. Tilden Wier has taken samples of it to Evansville where it is to be worked up and given thoro tests. Owners of land on which there are deposits are expecting that it will be the means of bringing pottery manufacturing plants to that point. This clay is of a light gray color and appears only a few feet under the surface, well digging operations having disclosed the information that the deposit extends to a depth of ninety feet.

Iowa

The Shackelford Brick Company of Des Moines, Ia., recently notified the mayor of that city that it was in a position to provide employment for all Iowa guards who are in need of work after being mustered out of the service at Fort Des Moines.

It is reported that E. H. Newby and R. L. Towne, both of Lynnville, Ia., are negotiating for the purchase of a brick manufacturing plant located in East Denison, Ia. They have been corresponding with members of the commercial club of that city who are interested in seeing the plant placed in operation. The factory, which is at present owned by Robert Theobald of Astor, Ia., has

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I will show you plans and specifications and you will see how simple, yet efficient, this kiln is. Write me and I'll call to see you at your hotel.

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This book contains the essential theory of the subject, and is written in an understandable manner.

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When You Think of Cars—Think of Youngstown

When clay products manufacturers who bought cars from us many years ago, simply write to us and ask us to ship the same kind of cars we did years ago—don't you think it's pretty good evidence of merit?

You will profit most if you, too, get the habit of "thinking of Youngstown" when you think of clay cars.

IT PAYS.

The Youngstown Steel Car Company,
Youngstown, Ohio

not been operated for several years. If the plant is purchased by the above parties, several important improvements and additions will be made. Mr. Newby is experienced in the manufacture of brick and tile, and is at present managing the clay products plant at Lynnville, which is owned by his father.

Kentucky

Orders for brick and tile are piling up on the books of the Coral Ridge Brick and Tile Company of Louisville, Ky., faster than they can be handled, according to James M. Howington, general manager of the concern. Mr. Howington reports that in spite of the difficulties encountered in getting the desired cars for shipping, the company is managing to make deliveries regularly into Indiana territory and in the vicinity of Cincinnati, besides supplying the Louisville trade and shipping to southern points.

More than 100,000 good common brick have been dumped into the Ohio river at Owensboro, Ky. They were not thrown away, but happened to be the only available material not subject to erosion which could be utilized by the Glemore Distilling Company to check rapid erosion of the river bank which was being undermined close to the foundation of the plant. In addition to the brick, of which 30,000 were supplied by one concern, bags of gravel and loose cement were also rolled over the edge and at the last reports the efforts to check the wash were proving adequate.

The Louisville (Ky.) Fire Brick Company, with plants at Louisville and at Grahn, Carter county, Ky., is working under "forced draft" at this time in an effort to keep up with business offered, altho the company is meeting with much the same difficulties in the way of obtaining cars for shipment of its product as are other concerns. Even when the company is able to get cars and start them on their way, there is no assurance where they will wind up with the existing freight traffic situation. J. H. Bell, salesmanager of the company, reports that his concern is booking orders right along, but qualified this statement by adding that these orders are for filling after the middle of the year. The demand for refractories is tremendous and the principal condition insisted on by the purchasers is that of getting what they want. As a consequence, prices have gone to unprecedented levels.

Maine

The Maine Wire Cut Brick Company of Auburn filed a certificate of incorporation with the registrar of deeds at the above point on February 13. The new corporation has a capital of $10,000. William J. Mahaney of Lewiston is president; Harry Day of Auburn, clerk and treasurer, and Marie Lemieux director.

Massachusetts

The city of Boston has placed an order for 500,000 brick. The Spears Brick Company of Boston, whose bid of $14 per thousand for water struck and $12.25 per thousand for stiff mud brick was the lowest received, secured the business. The brick are to be used by the city sewer department.

All of the brick plants in Massachusetts are closed now and shipments by water have ceased. Yards are cleaned out and will begin anew in the spring. In New England building has increased but they must wait for brick sup-



plies until after the first burnings are ready. Bay state brickmakers are planning for a good year during 1917.

An order for approximately 2,500,000 brick to be used in the construction of a storage warehouse on "T" Wharf, Boston, has been placed with the New England Brick Company. This is only one of several large orders that have been placed with Boston agents of the different brick manufacturers recently and all report a brisk demand.

The annual meeting of the Berkshire Brick Company was held at Pittsfield, Mass., recently and the following officers were elected: president, J. C. H. Church; vice president, S. G. Colt of Pittsfield; treasurer, R. V. Wood of Cheshire; assistant treasurer, L. Helland of Boston; clerk, Lansing Wilcox; directors, Messrs. Church, Colt, Wilcox, Z. M. Crane of Dalton, and C. T. Durant of Hartford, Conn.

Dyer Brothers of Greenfield, Mass., did and unusual business during 1916 and have closed the season with every brick sold. This company now has on file so many orders that it will be impossible to accept any more for some time to come. It is preparing to install another brick machine, which will greatly increase the output. The city of Greenfield has developed very quickly and building is going forward rapidly. It is the center of a great manufacturing section and the factories are for the most part of brick. Some manufacturers have their plans drawn for new buildings, work on which is to begin early in the spring.

Michigan

The Michigan Face Brick Company of Grand Rapids, Mich., recently received a large order for common and face brick to be used in the construction of a large school building in that city.

The plant of the American Brick and Tile Company, located at Morenci, Mich., formerly owned and operated by G. C. Miller, was recently sold to B. A. Claypoole of Carleton, Mich. Several additions are being made to the plant by the new owner, which will materially increase its capacity. Mr. Miller is divorcing himself permanently from the clay business.

Missouri

H. H. Crowell, salesmanager for the Hydraulic-Press Brick Company at Kansas City, Mo., reports that business has been exceedingly good, weather conditions and the season of the year taken into consideration.

Don Stophlet of the W. S. Dickey Clay Manufacturing Company, Kansas City, Mo., reports that the plant in the East Bottoms of the city is now working almost to capacity. The demand for hollow glazed building tile has increased substantially within the last month.

F. C. LaFountain of the Reliance Brick Company, Kansas City, Mo., reports that the business for the past week has been very good. Mr. LaFountain is featuring and spending a great deal of time upon the new lines that his company has recently taken.

Joseph Broering, who is in charge of the Hydraulic-Press Brick Company's plant at Diamond station, near Kansas City, Mo., has announced that he expects to begin the operation of the plant about the first of March. The factory has been shut down for several weeks for repairs and some rebuilding. Mr. Broering states that the plant will be in first-class shape when the present work is completed.



The New Sewer Pipe Truck

Differently designed—built better than ordinary—with the same care, the same skill, and of the same excellent materials of which we have long designed and built Toronto Machinery, from Sewer Pipe Presses to Dry Pans and Wheelbarrows.

This Pipe Truck is built in 3 different sizes. No. 1 handles 18", 20" and 24" pipe. No. 2 handles 27", 30" and No. 3 handles 33" to 36" pipe.

A post card request brings to you our descriptive matter.



Toronto Foundry & Machine Co.
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It will save from 1 to 3 men according to size of pipe



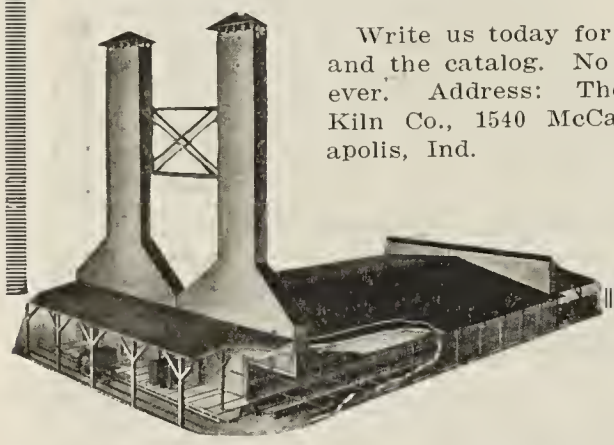
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The Standard Drier

Ask these brick men about the kind of drying results they are obtaining. They'll be glad to tell you—just as you'd be glad to tell them of a good thing.

They will tell you how absolute control of the drying elements makes The Standard Drier a success on any and every variety of clay—how the operating cost is very, very low—the upkeep practically nothing at all.



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10 Minutes Walk to 40 Theatres

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Formerly with Hotel Imperial

Only New York Hotel Window-Screened Throughout

The expected increase in the price of clay products in Kansas City, Mo., and the surrounding territory did not materialize the first of the month, as expected. However, many of the concerns at that point have declared that it is likely that the price of brick will be increased within the very near future. Just what this increase will be has not been made public. It will be based, however, upon the increase in the price of coal and other materials, which it is understood has increased the cost of making brick and other clay products approximately one dollar per thousand.

New Hampshire

The Claremont (N. H.) Brick Company was recently incorporated with a capital stock of $25,000, for the purpose of manufacturing soft-mud brick. The new industry will be located in West Claremont, on a thirty-five acre tract of land. The location of the plant is considered to be very favorable, inasmuch as the clay on the property rises seventy-five feet, consequently obviating the necessity for piping water, and an abundance of first-class molding sand is available. A railroad runs thru the property, making it possible to construct a spur track, and electric power is available at a very moderate rate. Allen Paddock, who is interested with his father, C. V. Paddock, the leading spirit of the enterprise, has recently returned from a trip on which he purchased all the machinery for the plant. Constructional work will probably begin in the early part of April, so that operations may be started soon after May 1. A daily capacity of 50,000 brick will be maintained, and from twenty-five to thirty men employed. The incorporators of the new concern are: C. V. Paddock, A. E. Paddock, J. H. Kiniry, A. F. Phillips, F. A. Cabot, F. W. Blanchard, C. D. Thrasher, O. B. Rand, R. D. Hunter, Hugh Deming and W. H. Chatwick. A $25,000 capitalization is to be divided into 250 shares of $100 each.

New Jersey

Working conditions in the clay products manufacturing plants in and about Perth Amboy are reported as being good, with a relaxation in the strain of labor conditions. As several of the big munition plants have filled large contracts many men have been released to the other industries.

The Hackensack (N. J.) Brick Company reports a large increase in business for the past season with a bright outlook for 1917. This company is gradually replacing all of its machinery with new equipment. The plant was in a rundown condition but is now on a paying basis. The management is confident that during this year the company will be very successful.

Clay mine operators of the Perth Amboy and Trenton (N. J.) sections will attend the coming conventions of the American Ceramic Society and National Brick Manufacturers' Association at New York, March 5 to 10. Abel Hanson, president of the Fords Porcelain Company, is on the arrangement committee for N. B. M. A. sessions.

The Middlesex Clay Miners' and Manufacturers' Association, of New Jersey, is looking forward to the meeting planned for the early part of the coming summer. The session may take the form of a clambake. The last get together held by this organization was such a great success that another will be welcomed by the members as a whole.

The Homestead (N. J.) Brick Company finished burning brick for the winter when its fires went out late in



January, which is unusually late for a brick plant to work in this locality. Each brick was promptly shipped as soon as cool and the company could have sold more if the burning had been larger. The manager states that the business offered far exceeds the supply, and for this year business has been better than ever before.

It has been said that Edward Schmultz of Hackensack, N. J., is contemplating making a number of improvements at his plant during the dull season. He made good profits during the past year, but said he could have done better had he better manufacturing facilities. It is necessary at this plant to keep the pumps in operation all of the time in order to prevent the clay pits from being flooded. This is, of course, expensive. It is one of the oldest plants in that locality and has been running for many years.

The Kingsland (N. J.) Brick Company has not yet decided whether it will rebuild the plant at Kingsland or not, which was destroyed in an explosion and fire at the Canadian Car Company's plant near by. The brick plant was owned by M. Kinney of New York. It has been rumored that he was to rebuild, but this cannot be verified. The munitions company stood the loss of the brick company's buildings not covered by insurance. This plant made a high-grade shale brick, which was used extensively in its section of the state.

The old schooners used on the Hackensack and Hudson rivers, formerly called "windjammers," which have sailed for more than forty years and are still in use, according to a current report are soon to be abandoned in favor of the tug-towed barges. Little by little these old boats are making their disappearance, and this will doubtless continue, since they are not as good as the barges for use in these waters. Now they are tied up at their docks, ice bound, making a rather picturesque appearance. They have been slow, but have furnished transportation for less money than any other way.

The Mehrhof Brick Company of Little Ferry, N. J., is still burning brick. It is almost unprecedented for any of the plants in this vicinity to operate during the winter. Heretofore, the practice has been to close up about the last of November or early in December, depending upon weather conditions, and remain closed until the spring thaw; but the price of brick has been very tempting this winter and the Mehrhof people decided to continue operations as long as they had anything to burn. Inasmuch as they have passed safely the coldest weather with one exception in forty-seven years, it is to be presumed that nothing to come in the future will disturb the operation of this company's yard. The river which flows back of the sheds is frozen thick with ice and all the company's schooners are fast, but the product can be profitably hauled to the railroad at Little Ferry at the present range of prices.

North Carolina

A very satisfactory year's business was reported at the recent annual meeting of the Gaston Brick Company of Mt. Holly, N. C., at which the following officers were elected: T. E. Rhyne, president; R. W. Barnett, secretary; B. F. Withers, treasurer and general manager; J. A. Costner, vice president, and G. R. Rhyne, local manager. This company operates two plants, located at Mt. Holly and Klondyke, N. C., the combined capacity of which is 100,000 brick a day. Improvements are now being made at the Klondyke plant, preparatory to placing it in operation as soon as the weather permits.



Marion

Steam Shovels, Dredges, Draglines and Kindred Machinery

STRIPPING a 17-foot overburden of clay to get to a bank of genuine "Galesburg Shale," and then digging this shale, to be made into its famous 10-pound paving brick, The Purington Paving Brick Company, of Galesburg, Illinois, employ three Marion Shovels.

The oldest of these, a pioneer "Marion" in the field of brickmaking, is still making good in hard stripping, six months in the year. One "Marion"

Loads Shale for 350,000 Bricks a Day—Has Had Two Overhaulings in Ten Years

—and has not been taken from the pit once during the whole time.

Marion Shovels are honestly designed, honestly built, honestly sold; they do their work with plenty of "reserve power" left over.

We shall be pleased to furnish particulars applying to your special proposition, without obligating you in any way, if furnished the necessary facts.

The Marion Steam Shovel Company, Marion, Ohio

Branches: Atlanta, Chicago, New York, Philadelphia, San Francisco, Seattle

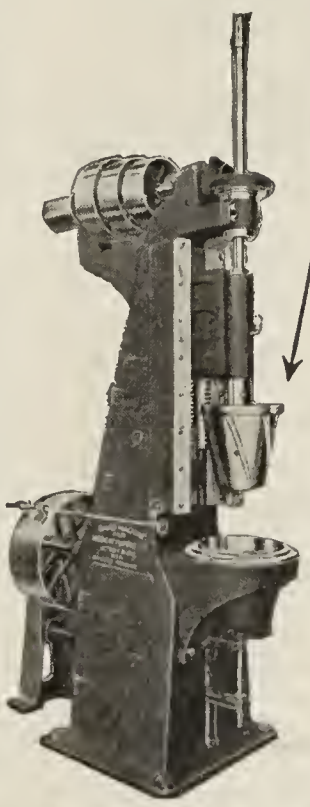
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It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the



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Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

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"The installation that gives results for years." Good results can only come consistently from an installation that has an ideal construction for the work required. Beighlees are high-resistance instruments, automatically compensating for cold junction errors; furnished with rare metal couples and rugged.



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Herman A. Holz, Hudson Terminal Bldg., New York, Representative in New England States

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you can do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —the **dependable brand.**

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100 William St. New York

Chicago, Ill. East Liverpool, O. Cleveland, O. St. Louis, Mo. Kansas City, Mo. Philadelphia, Pa. Boston, Mass. New Orleans, La.

We carry a complete line of high grade chemicals for the clay industry

Ohio

The Shaw Mantel and Tile Company of Zanesville, Ohio, reports a decrease in capital from $20,000 to $10,000.

The Stevens Pressed Brick Company of Cincinnati, Ohio, has been incorporated with a capital of $25,000 to manufacture brick. The incorporators are: Arthur W. Murray, Sr., A. W. Murray, Jr., Fremont C. Stevens, Ida J. Stevens and Clarence E. McMullin.

The Vitreous Clay Plant of Bedford, Ohio, has filed articles of incorporation with the secretary of state. The company, which has a capital stock of $100,000, is being organized by A. R. Markle, A. R. Eaken, A. M. Walker, Mae B. Markle and Gean S. Eaken.

According to a recent announcement made by the Hydraulic-Press Brick Company, it has moved its Zanesville (Ohio) office to Roseville, Ohio, where one of its plants is located. The change is expected to make it possible to manufacture and distribute the products of that plant more efficiently.

Papers have been filed with the secretary of state of Ohio increasing the authorized capital of the C. and B. Clay Company of Canton, Ohio, from $75,000 to $300,000. The cause for the increase is found in the necessity for improvements and betterments at the plant. Considerable new machinery will be installed.

At the Camp Conduit Company's plant, Cleveland, Ohio, there is more business on hand than can be handled under present conditions. Coal and car shortage, and a consequent lack of material is responsible. All the tile that can be made at the various plants of the company could be sold if there were cars to deliver it. Wages are stationary and labor seemingly contented, which is another factor making for good production.

Some minor labor troubles at several of the brick plants in the Hocking Valley (Ohio) district have been straightened out and all plants are now operating with fairly large forces. Since the signing of the wage scale with the workmen by the plants in the Straightsville district, some differences over the details of the agreement developed. Trouble with the clay miners at the Ironclay plant has been adjusted.

Negotiations are in progress and almost completed for the leasing of the large face brick plant of the Columbus (Ohio) Brick and Terra Cotta Company, at Union Furnace, Ohio. The plant has been idle for almost a year and recently negotiations were taken up. No definite announcement will be made until after the lease is signed. L. G. Kilbourne is at the head of the concern, which is one of the largest clay products companies in the Hocking Valley.

Plans for meeting the threatened labor disturbance in building circles in Cleveland, Ohio, were discussed at a joint meeting of the Society Advocating Fire Elimination and the Cleveland Board of Lumber Dealers recently. Unions in the building trades have made new demands, and several jobs in the city are now tied up as a result of a controversy between the common labor contingent and the contractors. The object of the material organizations at this meeting was to form themselves into a unit, but no definite action will be taken at present.

Further enactment of embargoes by all railroads entering Cleveland has played havoc with the clay products business of northern Ohio. These rulings are changing so frequently—on some roads every day—that it is virtually



impossible for the plants to keep track of their shipments. The only relief is that cars shipped from outside the territory upon which the ban has been placed before the rulings went into effect, are permitted to come in. The material thus received is insignificant to the amount required to meet the business on hand in all lines.

The Massillon (Ohio) Brick and Tile Company has been incorporated with a capital stock of $40,000 to manufacture brick and hollow tile. The incorporators of this concern, it is said, are William G. Dayfe, Walter A. Dayfe, E. E. Clements and William Dittmer of Massillon. The company's plant is located three miles south of Massillon on the Baltimore and Ohio railroad and has nine kilns, with a daily capacity of 40,000 face and building brick. This capacity will shortly be increased to 60,000, according to a report from an authoritative source.

While it is expected that the present Ohio Legislature will make some provision for the preliminary steps towards the state acquiring its own brick plant, the board of administration plans to renew its lease on the present rented plant near Junction City. This announcement was made recently. The plant near Junction City costs $4,000 annually. While the erection of a larger and more modern plant is expected to be started during the year, the state will operate the Junction City plant until the new one is completed. It is planned to remove seven million brick at Junction City as fast as possible to the new prison farm near London, where they will be used for the new buildings.

The suite of sale offices for the Hocking Valley Brick Company and the Nelsonville Brick Company, Columbus, Ohio, both of which concerns are owned by the same interests, will consist of two large rooms. M. M. Morrow, representing the Hocking Valley Brick Company, will be located in the offices as well as W. H. Lucktenberg. Later the bookkeeping department may be moved from the plant at Nelsonville to Columbus. During the past few months extensive improvements to the upper plant of the Nelsonville Brick Company have been made and the kilns are being placed in first-class shape. Plans are now being formulated for the manufacture of fireproofing at the upper plant and paving brick at the other plant of the company.

The Kentucky Fire Brick Company, with headquarters at Portsmouth, Ohio, and a manufacturing plant at Haldeman, Ky., has filed an amendment to its charter increasing its capital from $125,000 to $175,000. This is understood to be in connection with its taking over of an old fire brick establishment at Fort Payne, Ala., just over the Tennessee line. This plant, formerly reported to have been acquired, has been idle for some years, but will be restored and renovated in the shortest time possible in order to supply the tremendous demand for fire brick. The several preparedness movements of the national government with the consequent activity in the fabricating trades has already greatly increased the demand for refractories.

The Claycraft Builders' Supply Company of Columbus, Ohio, has been incorporated with a capital of $35,000 to take over the selling organizations of the Claycraft Brick Company and the Claycraft Brick and Mining Company, two large face-brick manufacturing concerns. Emmett Howard, who has been the salesmanager for the two former concerns, is treasurer and general manager and will be in charge of the business. The concern will operate in Ohio only and will do a general jobbing busi-

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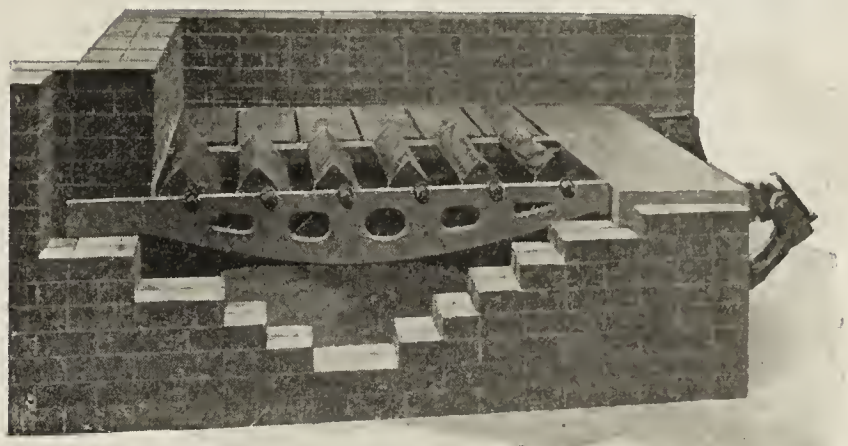
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The Last Addition to Atlantic City's Fireproof Hostelries

Artistically furnished and modernly equipped. A hotel of charming features and refined atmosphere. The house of service and the home of the epicure. Open air balcony restaurant facing ocean and boardwalk on main floor. Roof garden restaurant overlooking sea, where during season refined entertainment is provided.

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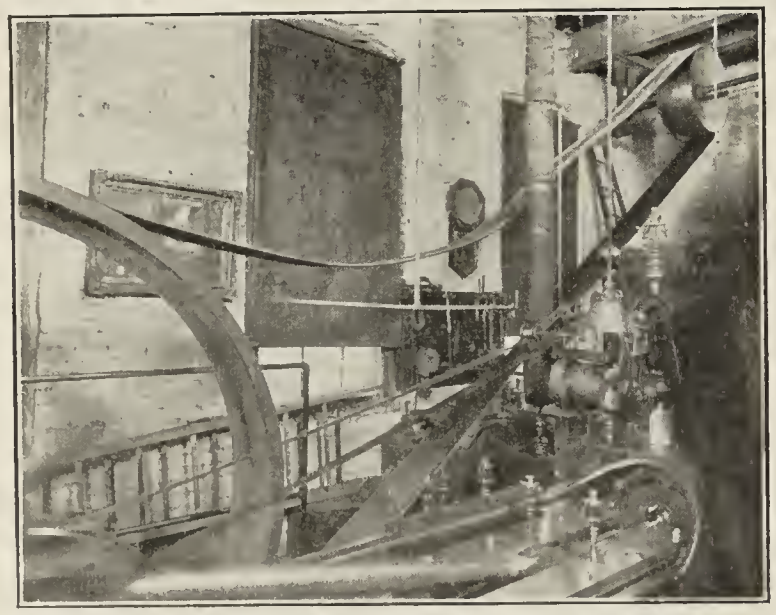
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An example: Mr. Louis J. Landmeir, engineer in the above plant, tells us that scientific treatment of this belt with Cling-Surface costs him only ninety cents per year. Then he goes on to say:

"Belt has had Cling-Surface treatment about three years. Is very pliable. No trouble with lacings pulling out or with belt slipping. Never have to take up belt. Used various belt dressings, but never had such success as with Cling-Surface."

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74

ness of face-brick and builders' supplies. J. W. Kauffman is president of the company; W. H. Hoagland, vice-president, and W. T. Mathews, formerly a salesman, secretary. The offices of the company will be located with the Claycraft Brick Company, at 907 Hartman building, Columbus. The concern will employ an engineer to assist architects and contractors.

Traffic matters are now attracting the attention of brick shippers and manufacturers above any other department of the business. With congestion at terminal and junction points and embargoes on many lines, brick shipments are delayed from two weeks to two months. Embargoes announced during the latter part of February almost tied up all brick shipments into Buffalo and Detroit. Cleveland shipments were also affected, and in fact, there is scarcely a section of the country which has not been affected by the embargoes. One of the worst features of this situation is the fact that no relief is in sight. According to managers of the railroads, unless the re-consignment rules are abridged the congestion will continue. But more pleasant weather is expected to be a help in relieving the congestion and getting railroad traffic back to normal again, if such a thing is possible.

The old plant of the Calumet Sewer Pipe Company at Toronto, Ohio, erected in 1870, is being razed and part of the material will be used in the erection of the new Ohio Valley Sewer Pipe Company's plant. The wrecking of this factory recalls an interesting bit of history concerning the clay industry in that section. The company was established in 1870 by Dr. William H. Garlick and in 1878, H. D. Sizer, S. B. Goucher, who is now with the National Fireproofing Company of Pittsburgh, Pa., W. B. Goucher and Samuel McAdoo joined in the corporation with Dr. Garlick. The original plant was destroyed by fire in 1884. It was rebuilt at once and sewerpipe was manufactured. In 1900 the plant was sold to the American Sewer Pipe Company along with a number of other factories in the Toronto district, but has been operated little since.

Improvements that will double the present capacity of the Malvern (Ohio) Fire Clay Company, and which are expected to be completed by May 1, are now under way. Ten new kilns are to be added to the battery of twelve now being used, and the output of fireproofing will be increased from two hundred and fifty to three hundred tons daily. When the company finishes the improvements, which will be made at a cost of about $100,000, between one hundred and fifty and two hundred men will be employed, an increase of about one hundred per cent. over the present working force. H. C. Downer is general manager of the Malvern Fire Clay Company, H. C. Ross, secretary and treasurer, and W. R. Elson, president and assistant superintendent. Mr. Elson recently moved from Magnolia, Ohio, to Malvern to give his whole attention to the plant.

With an initial membership of more than two hundred, the Ohio State Association of Contractors has been formed and soon will open permanent headquarters in Columbus. The secretary-treasurer, not yet named, will have charge of the office. H. E. Culbertson, Cleveland, is president; William Graham, Columbus, vice president, and William E. Minshall, East Cleveland, general counsel. The directors are: A. G. Pugh, J. T. Adams and D. W. McGrath, Columbus; Thomas Bently and L. H. Hawblitz, Toledo; D. Y. Swatty, Cleveland; William Adams, Zanesville; William Fink, Dayton; H. S. Illiff, London, and R. G. Tomlinson, Chillicothe. The pur-



pose of the organization is set forth as being to secure uniform contracts, specifications and methods of contracting, develop friendly relations among contractors and do an educational work with members and the public in subjects pertaining to contracting.

Stockholders of the Metropolitan Paving Brick Company of Canton, Ohio, recently voted in favor of an increase of $5,500,000 in the capital stock of the company, increasing it from $2,000,000 to $7,500,000. J. C. Barbour, secretary of the company, said that no plans have been made either as to the manner in which the new stock shall be sold or the purposes to which it shall be devoted. A large part of it will be used in extension of the present plants and in acquiring new property, but Mr. Barbour states that none of these plans have taken on any definite form. The Metropolitan company is now one of the largest brickmaking concerns in the county and the increase in stock places it in a position for further development in the future. Of the total issue $3,000,000 is an increase in common stock and $2,500,000 represents a preferred stock issue. Heretofore, the company has had no preferred issue.

Oklahoma

A young "earthquake" struck Tulsa, Okla., recently, when the Tulsa Vitrified Brick and Tile Company shot off a two-hundred-pound charge of dynamite in its shale bank. Besides providing the plant with a large amount of raw material, this record charge, the largest ever fired by the company, was good publicity for the plant inasmuch as it notified everybody in town in a rather energetic manner that operations were under way.

Oregon

Improvements to the plant of the Bend (Ore.) Brick and Lumber Company which will increase the monthly capacity to one million brick, are soon to be made, according to A. H. Horn, proprietor of the company. The drying capacity of the plant will be doubled and cable conveyors installed to transport the dried brick from the sheds to the kiln, eliminating the wheelbarrow system now in use. The installation of a steam scraper in the clay pit will also facilitate operations at that point.

The plant of the Beaverton (Ore.) Brick and Tile Company, together with sixteen acres of land, was recently purchased by Charles I. Moody and W. L. Mason, who will place it in operation after a two-year period of idleness, under the corporate name of the Oregon Brick and Tile Company. The plant will have a capacity of from 60,000 to 100,000 brick a day. The Oregon Brick and Tile Company has capitalized at $40,000, all of which is owned by Mr. Moody and Mr. Mason, who acquired the title to the property thru a purchase of the trustee's right of redemption and the payment of a mortgage. The Beaverton plant was built in 1911 at a cost of $65,000, and is equipped with modern machinery. Drain-tile, according to Mr. Moody, will constitute the bulk of the output when operations are started, since a heavy demand exists for this product.

Pennsylvania

The directors of the Harbison-Walker Refractories Company met at Pittsburgh, Pa., recently, and declared an extra dividend of six per cent. on the common stock, payable February 20, to stockholders of record February 10.

The problem of maintaining tight valves is most effectively solved --when you equip with--

Jenkins Bros. Valves

Considering the service, they are more economical and far superior to the common metal seat types. Jenkins Bros. Valves have no metal-against-metal contact of seat; instead, there is the combination of brass raised seat and Jenkins renewable composition disc. The labor of regrinding is obviated. When repair is necessary, simply insert a new disc at expense of a few cents, and you have practically a new valve. Any dealer can supply. All genuine have diamond trade mark, as shown in the cut.



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Kiln Furnace Grates

With these grates it is possible to burn less fuel and to use a cheaper grade—attaining an even, uniform flow of heat.

The total of the two savings has reached over 40 per cent of the former fuel bill on one fire brick plant.

Try them on just one kiln; they will fit your furnaces. Note that the wheels in back permit easy moving from kiln to kiln.



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CANTON, OHIO

SAY "I SAW IT IN BRICK AND CLAY RECORD"



EQUIPPED WITH WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

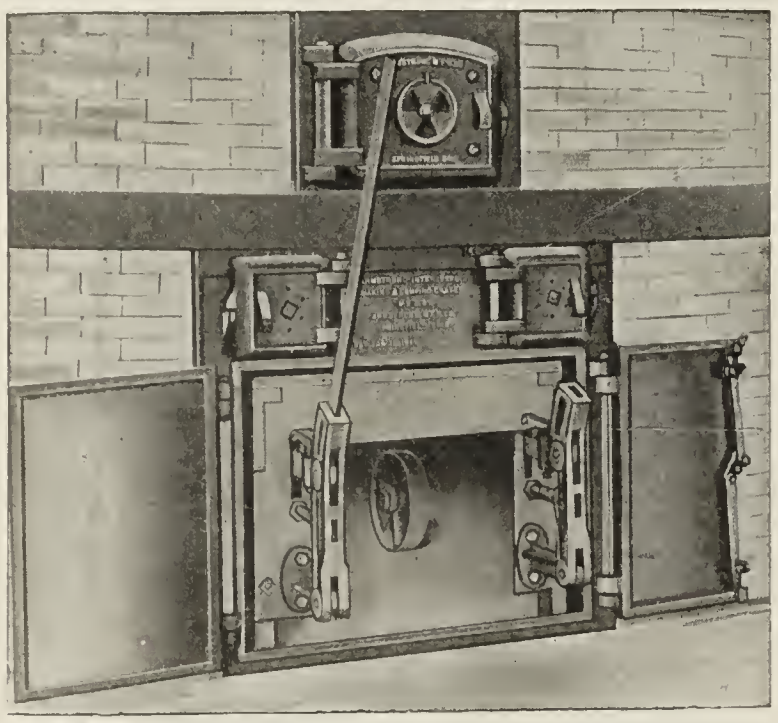
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are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

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Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

On December 1, 1916, the company paid its regular dividend of one and one-half per cent. on the common stock, together with an extra dividend of two per cent.

In order to make required extensions to its big plant at Hazelton, Pa., and to increase the capacity, the board of directors of the Wilkes-Barre and Hazelton Brick Company voted to increase the capital stock of the company from $150,000 to $300,000. With this sum, improvements of an important nature will be made possible. The decision of the board of directors will be presented to the stockholders at the annual meeting, when the directors will be named for another year.

In glancing over the various industries of the Pittsburgh (Pa.) district, one would be surprised at the scarcity of brick manufacturing plants in operation. When the various plants were consolidated under one management it had a serious effect on the small operator who did not annex himself with the consolidation. Attempts to compete on a financially successful basis were unsuccessful, and it was not long before it was discovered that it was folly to go into the market. Today, instead of face brick coming directly out of Pittsburgh for local use, the product comes from all points, east, west and south, while it may be stated without fear of contradiction, that the section north of Pittsburgh furnishes the greatest amount. Many of the common brick plants in small towns close to Pittsburgh are things of the past. They were numerous ten years ago but few today.

Tennessee

The Johnson-Porter Clay Company of Paris, Tenn., has recently opened new mines at Whitlock and Porter's Switch, near Paris, Tenn. Ed. Huddleston is in charge of the operations at Whitlock and John Jackson at Porter's Switch. At both points it is stated the company is taking out a high-grade clay.

R. E. Bransford of T. L. Bransford and Sons, brick manufacturers of Union City, Tenn., reports the last six months as having been a very remarkable period for his company. He states that all of the 1916 stock has been cleaned up, and that they are anxiously awaiting for the time to come when they can again operate. During the past year labor constituted a very serious handicap for the Bransford Company, and consequently decreased the company's output. A very optimistic condition prevails there for the brick manufacturers, since the use of burned clay in constructional work is rapidly increasing. Mr. Bransford states that, judging by its start, the year 1917 will undoubtedly be a banner one.

By order of the Tennessee Railroad Commission upon complaint of the Traffic Bureau of Nashville, Tenn., tariff No. 7, of the N., C. & St. L. Railway was suspended recently. This was a tariff publishing intrastate rates on brick between stations on respondent's lines in Tennessee. Subsequently, a full hearing was had in the office of the commission on February 5, at which time the testimony was taken and exhibits filed. It was shown that for distances of 199 miles and less, the proposed increase in rates did not exceed one-half a cent per one hundred pounds, or approximately twenty-five cents per one thousand brick, and that this increase might enable new brickmaking plants to locate at stations near respondent's lines of road for the purpose of supplying the local trade. Because of this, the increase was not found unreasonable or discriminating, and the suspension was vacated.



Texas

Work of rebuilding that part of the Acme Press Brick Company's plant at Denton, Tex., which was recently destroyed by fire, is progressing rapidly. The plant will probably be ready to resume operations in the very near future.

The large brick manufacturing plant being constructed near Vidor, Tex., by the Beaumont Brick Company is rapidly nearing completion, a considerable portion of the main buildnig already having been erected and some of the machinery installed. Indications at present point to the opening of the factory before the first of March. The plant, which is to have a capacity of 50,000 brick a day, will cover four and one-half acres of ground and will be equipped with eighteen drying sheds and four kilns. A repress machine will be installed for manufacturing face brick, and later the manufacturer of hollow building tile will be undertaken. A spur track is being laid to the Kansas City Railroad, and another will be built to the Southern Pacific tracks, which will provide the plant with ample rail facilities for shipping its products.

Vermont

Vermont brickmakers, like those in other states, are planning for an increased output during 1917, since the demand is heavier at the present time than it ever has been before. A boom struck this state two years ago and the brickmakers have been kept busy trying to keep up with the demand. This is a timber state, but timber is scarce, and brick must take its place. Many plants are reported to be making changes at this time and looking forward to a good season.

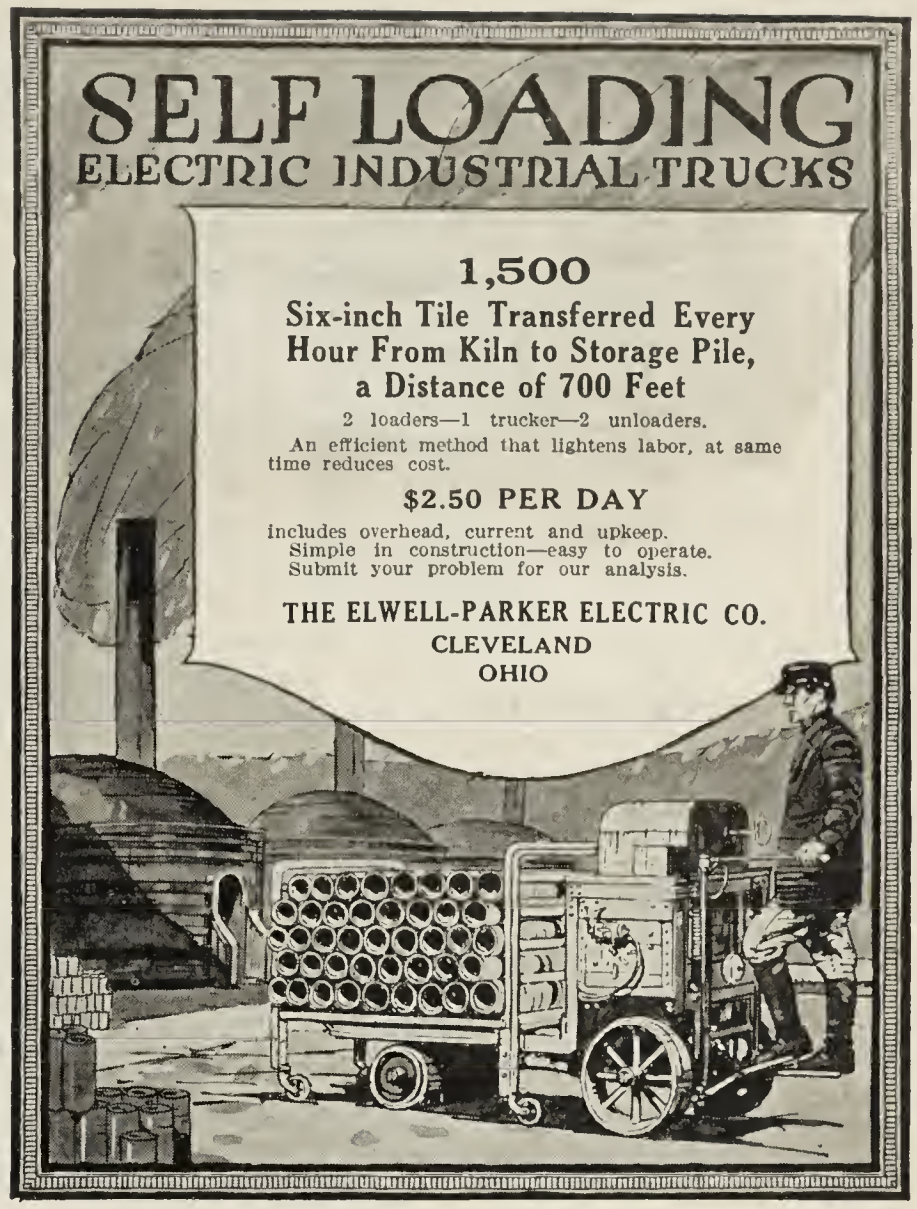
Wisconsin

At the annual business meeting of the Wisconsin Red Press Brick Company of Menomonie, Wis., heid on January 26 and 27 in Minneapolis, Minn., J. D. Pratt was made manager of the company. Mr. Pratt, who has been foreman of the plants in Menomonie for the last three years, will continue to supervise operations in connection with his new managerial work. A number of very important improvements are being made on this company's plants, included in which are the reconstruction of racks and the rebuilding of the kilns. In order to overcome the necessity for having to stop operations during the winter months, this company is contemplating the purchase of a tunnel dryer, which, it is reported, will be installed some time during the coming year.

* * *

Imported Brick Found in Old Colonial Homes

In many of the houses built by the Dutch more than two centuries ago brick are found which were imported from Holland and still bear the marks of their Dutch makers. None of these have been deciphered, but the fact that they are present after all these years is ample evidence of the quality of the brick turned out. They came to this country as ballast in slow sailing vessels, in many instances, and for the first few years of the colonies in and about what is now New York, brick were imported. Then the manufacture began in the New Jersey clay deposits and has been kept up ever since. The early product was more like the Roman brick, but in later years all but one or two plants adopted the standard size and make nothing else. These old brick are interesting examples of the excellent work which was done eight generations or more ago.





Many of the progressive, profit-paying clay product plants are **standardizing** by adopting

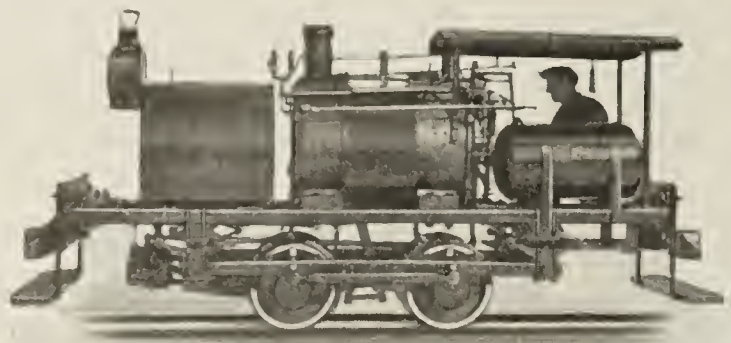
HETTRICK
Red Stitched Canvas Belting

They know this product is absolutely dependable, regardless of the conditions under which it is used; and they also know that greater efficiency in the operation of machinery is obtained by using the same high quality of belting for conveyors, elevators and power transmission.

Will you let us prove this to you?

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The Bell Steam Locomotive

BURNS kerosene fuel —and kerosene is only 9c a gallon—hauls a 50% heavier load than any other steam locomotive, does not require a licensed engineer and costs less to buy. Therefore—low first cost and low ultimate cost.

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USE "Brick and Clay Record" Classified Ad Columns because you'll get quick action.

Published every other Tuesday, it's the **newspaper** as well as the journal of the clay-products industry.

If you need help—have a machine for sale or are looking for a second-hand machine—a classified ad in "Brick and Clay Record" will bring results.

Eight cents per word for first insertion; six cents per word for each additional insertion.

BRICK AND CLAY RECORD

WAR MIGHT HINDER,

CANNOT STOP BUILDING

(*Continued from Page* 445.)

excess of the available supply. This demand must be taken care of. War or no war, the new building operations contemplated for 1917 may be delayed but they cannot be put off, is the consensus of opinion among reliable students of New York real estate conditions. The demand is pressing. Should war come, of course many operations would be postponed indefinitely, especially those of the speculative variety, but it is felt that where there is a pressing need for a structure it will be erected and with slight delay. Money and labor are the prime requisites of the construction business and to a large extent these factors would be diverted to channels for protection and offense in the event of hostilities.

Material producers admit that the cost of construction, including the cost of labor and building commodities, has advanced considerably and that it is a fact that there is less industrial, commercial and residential space available at prices which present tenants have been accustomed to pay, showing that, altho costs of materials are high, there is still the same chance for taking the same profit out of building enterprises that existed in periods less tense than the present one.

Another argument advanced is that the temporary stagnation in construction is really due, not so much to the high cost of material, as to the practical impossibility of getting building commodities quickly enough to insure completion of building before the rental season begins.

FIVE YEARS TO CATCH UP WITH DEMAND

According to the Dow Service reports, building men foresee a period of great prosperity in the building professions for a period approximating half a decade which it is held is shown by the fact that orders for most ordinary equipments and materials are being taken subject to delivery as late as the last quarter of 1918. New York architects have a vast amount of new building operations on their boards, but they are not giving out advance information to any extent concerning them, as they fear competition developing prior to taking figures for materials, which they are advised will not be deliverable until time for renting seasons running from the Spring of 1918 to the Spring of 1919. With rental conditions such that it will admittedly take approximately five years to again over supply the metropolitan district with dwellings, as well as industrial and commercial space, it does not take an expert to figure the remarkable condition that exists even if the country is "on the verge of war."

CAPITAL FROM BELGIUM BROUGHT HERE

According to the New York "World," another factor of no small consequence has entered the situation. The "World" says that "vast riches from war-ridden Europe are seeking safety in New York real estate." Capitalists in neutral countries, threatened with disastrous invasion, are hastening to send available funds here, and according to brokers close to large financial interests, more than 50,000,000 has been turned this way during the past two weeks. For instance, a syndicate at Antwerp, Belgium,



purchased ninety lots at Manhattan Beach and they will be improved at once. Investors from Holland, Denmark and Sweden are examining the market in Manhattan and the Bronx for similar investments, and beside this, there is the American investor who feels that after all is said and done the safe place to put his savings is in real estate.

MILLIONAIRES STIMULATE BUILDING BUSINESS

A factor in the building situation creating about as much interest as anything, not excepting even the war and rumors of war, is the invasion of Millionaires' Row. Occupants of the Row are almost panic stricken, not at the thought of shrapnel being dropped on their roofs, but at the possibility of skyscraper apartment houses driving private homes out of Manhattan. Syndicates are negotiating for all available sites in that exclusive section between the Plaza at Fifty-ninth street and the north edge of Carnegie Hill at Ninety-fifth street. Only the other day Andrew Carnegie was forced to bid against the invaders, paying $1,750,000 for the corner opposite his home which the city appraises at only $935,000. Henry Clay Frick and Henry Phipps had to buy in plots recently to protect their palatial marble homes as did James B. Duke and J. P. Morgan. Activity of the millionaires in buying land to keep out apartment houses has postponed indefinitely the building of expensive apartment houses while the would-be investors are hunting new sites. Four great structures, however, are under way representing a total investment of more than $15,000,000. Most of the apartments are rented from the plans, prospective tenants agreeing to pay from $15,000 to $30,000 for apartments ranging from twelve to thirty rooms.

VANDERBILT, SCHWAB AND ROCKEFELLER AFFECTED

Millionaires' Row is not the only section contending with would-be apartment house skyscraper builders. W. K. Vanderbilt and W. D. Sloane have expended $10,000,000 keeping out new buildings not to their liking and Charles M. Schwab is beset with similar troubles. His $5,000,000 residence is threatened with having apartment house company, while over on Fifty-fourth street John D. Rockefeller has had his hands full keeping out undesirable buildings. The opposition of these millionaires is not killing any building ventures but rather is stimulating the real estate business in general, creating sales of parcels that might not have been made otherwise and resulting in new structures going up besides.

FALLING OFF IN PLAN FILINGS

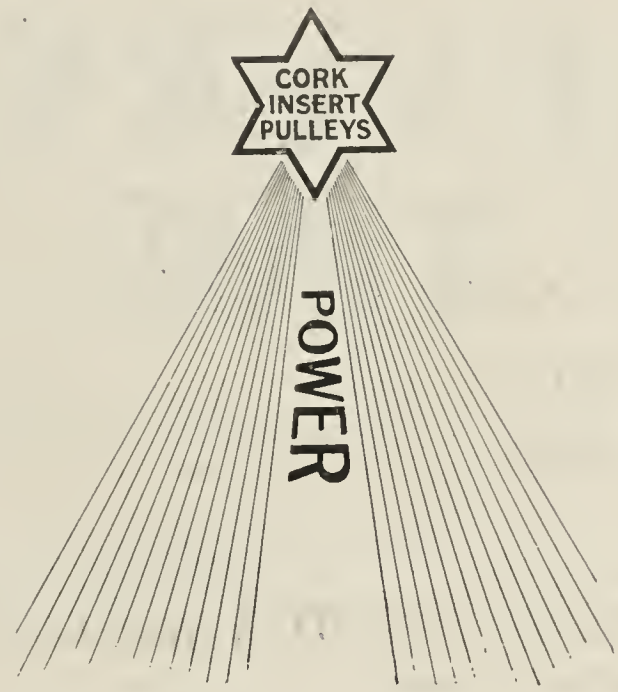
In Manhattan there was a falling off in plan filings during the week ending February 16 for both new buildings and alterations, as compared with the corresponding period of 1916.

New buildings cost $293,500 as against $800,345 in 1916, and alterations in 1917 totaled $334,892 as against $416,120 in 1916. From January 1 to February 16 this year, the figures were $5,233,300 as against $5,739,295 for a corresponding period of 1916. Figures for alterations for the first part of this year are higher than for the same period last year, being $1,942,337 against $1,864,284.

BRONX HARD HIT BY SLUMP

The Bronx is hard hit by the slump in building operations. For the week ending February 15 this year plan filings totaled only $105,000, where a year ago they reached $572,900. Alterations this year for the same

THE STAR
Of the Power Transmission World
Watch Its Beams Spread



The SIX Points of SAVING—

POINT 1 **POWER**

In 1911 The Washburn Wire Company, of Phillipsdale, R. I., replaced with a Cork Insert Pulley, an ordinary iron main drive pulley receiving from a 1400 H. P. engine. The ordinary pulley even with the help of an idler and belt tightener could not deliver the necessary power to do the work. ***Last September they put in two more 1500 H. P. Cork Insert Pulleys because of the power saved by the original installation.***

CORK INSERT PULLEYS

saved them $3400—the difference between the cost of the Cork Insert Pulley and the cost of the rope drive which was the only alternative.

WRITE US TO SHOW YOU how Cork Inserts can save power and cut operating costs *for you.*

The Cork Insert Co.
168 Federal Street
Boston, Mass.

THE SLIP-STOPPING PULLEY



A GOOD BURN EVERY TIME

With Best Fuel Economy can be secured only with **A Perfect Heat Distributing System**—That's the Hook Down Draft System.

Of course by careful dampering and firing you can secure a fair percentage of good burns with other kilns, but "Evening Up" a kiln by dampering is uncertain, **loses time, and heat by radiation and up the stack.**

The longer a kiln is on fire the greater these losses.

There is no uncertainty about the Hook Down Draft Distributing System. This has been proven by over **Five Years of Service** in both large and small plants all over the country—with all kinds of clay.

Easily and cheaply installed in old kilns. Cheaper to build new than other types.

The Superintendent of one of the largest clay-working plants in the world has just written us: "I can represent your floor as a reality, not an experiment. It is doing all that you claim for it and more." (His name and address if you want it.)

Tell us what you are doing now, it will help us to make our first letter more interesting. Just give us the number and size of your kilns, kind of clay, ware and fuel, together with your present burning time and fuel consumption.

Why Not Now?

HOOK PATENT KILN CO.

HIGH & SPRING STS., COLUMBUS, OHIO

Kiln Bands, Grate Bars and All Accessories.

period totaled $5,600 and last year they were double the amount. Last year from January 1 to February 17, plan filings for new buildings totaled $3,014,100 and for alterations $86,250, and this year for new buildings but $951,175 and alterations $120,175.

Brooklyn reports $728,000 for the week ending February 15 this year, as against $660,600 for a like period last year for new buildings. Alterations this year reached $72,620 and last year $59,770. From January 1 to February 15 this year, new buildings totaled $4,878,200 and alterations $417,995. For a corresponding period last year new buildings totaled $4,980,000 and alterations $386,665. Queens reports a falling off this year up to February 15, the figures being new buildings $1,080,987 and alterations $108,297 in 1917, and in 1916 new buildings $2,300,494 and alterations $130,814. Richmond shows a gain for both new buildings and alterations reporting $206,943 for new buildings thus far this year, as against $99,770 last year, and $67,340 for alterations this year as against $17,530 last year.

* * *

COUNTING *the* COST

(*Continued from Page* 449.)

middle of a year, without closing the books or taking off a statement preparatory to the change of system. The system is still working smoothly and satisfactorily in every way, and the work of accounting is far less than it ever was under any other system. Of course, it is a little easier to put in any new system at the beginning of a financial year, but this is by no means necessary.

The writer remembers hearing a president of the Royal Astronomical Society tell of a certain improved type of compass, which was quite expensive to install, but which enabled the officers to direct the course of the ship more closely and thus saved in coal alone on the first voyage the cost of its installation. A good cost finding system will, in like manner, promptly pay the cost of its installation, and keep on paying year in and year out.

* * *

An Echo from the Canadian Convention

(*Continued from Page* 452.)

QUESTION BOX A FOUNTAIN OF KNOWLEDGE

An intensely interesting feature of the convention, which brought out some very keen discussions and uncovered much information, was the "Question Box," conducted by A. F. Greaves-Walker, such subjects as factory management, labor shortage, wage systems and factory ventilation being discussed.

On Tuesday evening an entertainment was given in the Royal Banquet hall of the hotel, at which Jack Minor, who earlier in the day delivered a talk on "Success in a One-horse Tile Yard," spoke for an hour and a half to a deeply interested audience on the subject of "The Value and Intelligence of Our Birds." Some lighter entertainment, in the



form of musical numbers, was contributed by Miss Estelle Carey Allen.

On Wednesday morning a visit was made to the plant of the Procter and Gamble Soap Company by the delegates and their wives, after which they divided themselves into two parties, one of which inspected the Hamilton electric plant of the Canadian Westinghouse Company, where some of the largest electrical equipment in the world is made. At this point, the visitors were shown munitions in the process of manufacture. The other division visited the huge plant of the Hamilton and Toronto Sewer Pipe Company.

PATRIOTISM MARKS ANNUAL BANQUET

The annual banquet, held on Wednesday evening, was a most successful and memorable event. Officiating as toastmaster, W. H. Cooper started off the evening's entertainment with a toast to the king, and called upon Mayor Booker of Hamilton to propose a toast to the Empire, which was responded to by Major Walters. Honorable Justice Riddle, the speaker of the evening and renowned as an orator of unusual ability, delivered a very forceful and inspiring patriotic appeal in which he pointed out the duty of every Canadian to help decide the outcome of the European conflict.

Lest you forget, we will again publish the names of the officers elected for the year 1917, who were as follows:

Past President—J. Edward Frid of Hamilton.
President—A. F. Greaves-Walker of Toronto.
First Vice president—Thomas Kennedy of Swansea.
Second Vice president—William Burgess of Todmorden.
Third Vice president—Ryland H. New of Hamilton.
Secretary and Treasurer—Gordon C. Keith of Toronto.

* * *

Keystone Paving Plans of Interest to Brick

The State Highway Department of Pennsylvania has announced that it has prepared a budget for submission to the General Assembly, which is now in session at Harrisburg, calling for an expenditure of $24,850,000 for two years.

This bill is to provide six million dollars for two years for state highway construction, and one million dollars per year for construction of state highway routes in boroughs. This money is to be used only in building missing links in boroughs where a state highway route is improved up to each end of the borough, the money to be allotted to the various counties on a mileage basis. Final decision as to the expenditures is to be left to the state highway commissioner. Any unexpended balance in each county is to be available for use on routes outside of boroughs in said county. This will eventually mean the use of millions of brick, as many of the boroughs in the Keystone state, when they do improve their main street thru the town, pave with brick.

Just what it will mean as to brick roads in rural sections, awaits development, and it is not at all improbable that some stretches may be constructed of brick.

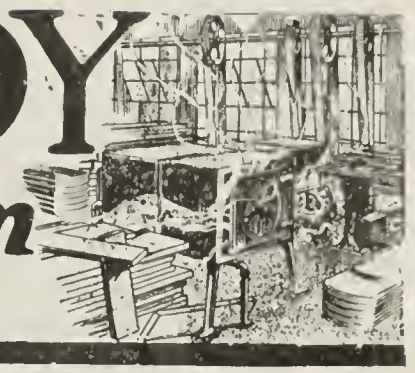
One million five hundred thousand dollars per year for state aid construction and maintenance and $250,000 per year for the purchase of turnpikes and toll bridges, local authorities paying fifty per cent. of the cost of freeing toll roads and bridges, are also provided in the budget. In addition, the necessary legislation is asked to make available the automobile license fees for state highway maintenance, these making a total of $6,000,000 in two years.

* * *

Fighting Misrepresentation of Brick Paving

A commendable defense of brick pavements was made by the Alton (Ill.) Brick Company in a letter recently

GANDY and Steam

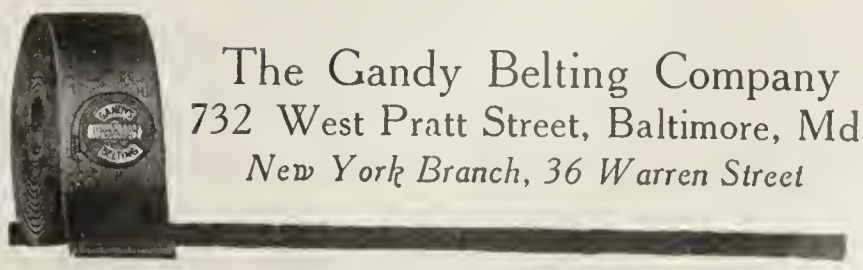


"We have been using your belt for the past three years in our laundry as well as in our branch factories, and find it an excellent drive for any place wet or dry, and can highly recommend the same to all laundrymen and others."

Steam gives leather belting gruelling punishment—makes it so hard and stiff that it can't grip a pulley. That means loss of power as well as loss of belting. All that means loss of money. Often, steam separates the laps of leather belting and the plant shuts down until new belting is installed.

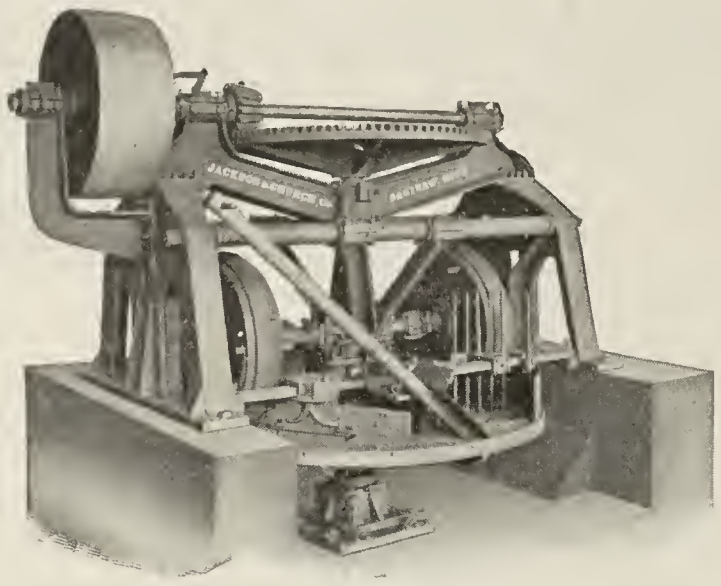
Gandy stitched cotton belting stands the gaff of steam, heat, water, gas, oil and dirt. It is proof against all these destructive forces. Gandy belting will give you the best of service, the longest of wear under the most trying conditions.

Take advantage of our service department directed by skilled engineers. They will be glad to advise you, in an entirely unbiased manner, if you can use Gandy with profit. An inquiry will not obligate you, of course.



The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street





Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

sent to the property owners on a certain street in that city soon to be paved. Some agitation has been felt for the construction of a concrete pavement to take the place of a brick pavement that has been down for twenty-three years. Despite the remarkable quarter-century showing of the old pavement, the residents on the street referred to are giving an ear to the pleas of contractors who favor the competitive material—concrete.

The story thus far is not essentially different from that which might be taken from the book of every-day experiences by any paving-brick manufacturer, but the method of combating the problem which it faces gives to the Alton company a right to the title "original." In fighting the use of the burned clay product for the proposed paving work, the local contractors have made the statement that it is impossible to lay a smooth pavement using brick. To prove that this contention is based on anything but truth, the Alton Brick Company has "thrown its hat in the ring" and announced itself ready to enter the combat as a contractor, make a bid and lay the pavement, to show that when a brick pavement is properly constructed it is ideal and permanent.

* * *

U. of I. to Hold Drainage Conference

The Second Annual Drainage Conference of the University of Illinois is to be held on March 13, 14 and 15, by the Department of Civil Engineering, College of Engineering, Urbana, Ill. Engineers, drainage officials, contractors, public officials, landowners and business men from all parts of the state will be in attendance to consider such important subjects as the reclamation of swamp and overflowed lands, flood control and the conservation of the soil.

The reclamation of all the overflowed lowlands along the rivers of Illinois would add $150,000,000 to the land values of the state, which proves the great importance of the subject of land reclamation. The conference to be held at Urbana will have for its purpose the stimulation of greater interest in this problem. The speakers will be engineers and public officials of prominence and information regarding the practical phases of drainage will be made available to those in attendance. The organization and financing of drainage districts, the surveying of drainage areas, the design of systems, and improved methods of construction are among the subjects to be discussed.

* * *

Expose Abuse of Reconsignment Regulations

Brick manufacturers and shippers are very much interested in the movement to bring the railroads of the Buckeye State under more rigid control of the Ohio Utilities Commission. As the result of an investigation held by the commission last week, primarily on the coal traffic, but extended to other commodities, it was brought out that one of the worst features of present congested traffic conditions is the abuse of the reconsignment regulations. As a result, some of the officials advocate the abolition of the reconsignment privileges altogether. But this is opposed by some classes of traffic, especially the lumber and coal interests. The purpose of the hearing was to find out, if possible, the exact causes for the present congestion in traffic and embargoes which has held up shipments for weeks. Brick shipments have been suffering with other lines of freight. The purpose of the more rigid regulations is to secure more co-operation between the state commission and the operating depart-



ments of railroads and a more business-like dispatch of traffic at all times. It is designed to give the commission power to step in at any time and help handle congestion by shifting rules and regulations. Many of the railroad managers look with favor on the suggestions, if they are not carried to an extreme.

* * *

War Prosperity Revives Jersey Brick Yard

Mountain View, located within a few miles of Paterson, N. J., was formerly a brick manufacturing center of considerable importance. Three plants were located in the narrow valley between the mountains not a great ways from two principal railroad lines. The Enterprise Brick Company employed about twenty hands, Oschwald and Uldich employed forty hands and the Standard Brick Company employed forty-five. Labor was cheap, and even at the low price obtained for brick in those days, all three firms were able to make a fair profit. Their product went by rail to Paterson, Newark or New York, as the case might be. The Morris Canal flows near the plants, but since that has been controlled by the Lehigh Valley Railroad, traffic on it has entirely ceased.

Notwithstanding favorable production costs, the Standard Brick Company went into the hands of a receiver and has been operated by the courts for a number of years. Negotiations are now pending for its sale, which if consummated will mean rehabilitation. It is understood that the new owner will start with orders for 1,000,000 brick and he will operate his plant the year round. The steady demand for brick for building purposes regardless of the season insures a profitable business for the few all-the-year plants in this vicinity.

* * *

Gas Shortage Assumes Menacing Aspect

The shortage of natural gas in the western pottery district has again assumed very grave proportions. The gas companies have been promising to do their best to take care of the potteries, and perhaps they have been fulfilling their promise, but the shortage has been more pronounced than ever. Prominent pottery managers are looking about for some plan by which they can obtain results equally as good from the use of some other fuel, and it is expected that another year will see some important changes made. For the present, however, the potteries have to suffer, and it can be taken as granted that every time there is a severe cold snap pottery production is going to fall off.

* * *

A deep impression upon city officials and others interested in good paving, in Massachusetts, New Jersey, and the East generally, was made by the exhibit of the National Paving Brick Manufacturers' Association at the gathering of the American Road Builders Association in Boston, February 5th to 9th. The Eighth National Good Roads Show included an exhibit of photographs and literature, supplemented by sections of brick paving, which were shown and explained by Secretary Will P. Blair. The display is considered opportune at this time, according to H. H. Macdonald, assistant secretary of the National Paving Brick Manufacturers' Association, because many new paving projects in the East are about to be given out, and those interested are seeking the best material and construction the country has to offer.

The Veritas Firing System

This marvelous method of measuring the heat progress being made in a kiln of ware, will be explained to you at the coming convention in New York City.

See Herbert Forester at any time during the week March 5-10, at the McAlpin Hotel and make arrangements for an interview.

The System is used in over 150 plants in the United States, burning over 1000 kilns each week.

It is simple, accurate and costs about one twentieth as much as the ordinary temperature equipment used by such firms as The Hydraulic-Press Brick Co., Cleveland, Ohio, and the Dover Fire Brick Co., Cleveland, Ohio.

The Veritas Firing System Company

TRENTON, NEW JERSEY

And Herb r Forester, Box 37, Cleveland, Ohio

Send for Particulars





The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men— in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.20
Brick Drying (English edition)	1.00
Brick Houses and How to Build Them	1.00
Bricklaying, Rudiments of Practical	.60
Bricklaying System	3.00
Brick Work (Walker)	.60
Brickwork and Masonry	3.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	5.00
Clay Glazes and Enamels	5.00
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.25
Clay-Working Problems	1.50
Economies in Brickyard Construction and Operation	1.00
Effect of Heat Upon Clays	2.00
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Glazer's Book	1.00
Hollow Tile House, The	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.50
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.40
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Efflorescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

If the book you want isn't here ask us to get it.

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent import duty.

Address, **Book Department,**

Brick and Clay Record

445 Plymouth Court, Chicago, Ill.

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

The Use of Pyrometers in Clay Burning

By C. B. Thwing, Ph.D., President
Thwing Instrument Company, Philadelphia

As a rule the condition of clay products when they enter the kiln is fairly uniform and well known. The large variations in the ware turned out from different kilns which have presumably had identical treatment during the burn is due mainly to lack of information as to what is going on from the very beginning to the end of the burn.

Thermoelectric indicating and recording pyrometers furnish by far the best means yet devised for giving continuous and reliable information of the temperature. Their intelligent use invariably results in marked reduction in the time of burning with a corresponding reduction in cost of fuel and labor and a corresponding increase in the capacity of the plant.

There is a best temperature at which to finish any given ware and a minimum safe rate for raising the temperature. When these have been determined by experiment, the pyrometer enables the burner to repeat these best conditions every burn with resulting improvement in the quality and uniformity of the ware and a distinctly higher percentage of first-class product.

Many manufacturers have effected sufficient savings to pay the entire cost of the pyrometer installation in the first six months of use. Burners are often antagonistic to the installation of pyrometers but they soon learn that the instrument praises them when they do well, as well as it blames them when they fail. The head burner finds that he can keep perfect tab on the night man and he no longer accepts the time-worn excuses which sought to throw the blame on the other fellow.

Some superintendents draw a red line on the chart showing just what rate of gain in temperature is to be made for the following twenty-four hours and the burners, night as well as day, always keep the record very close to this line. If there is good reason for their deviating much from the line they are expected to report the reason and a note will be made on the chart. The burner is thus shielded from unjust blame if a kiln does not finish well so long as the records show that he has followed the instructions given him.

While pyrometers are by far the best single means of controlling the burning of clay wares, it is by no means advisable to abandon any other checks which have been found helpful. Cones, trials, shrinkage disks settle, draft gauges, all give valuable information and one marked advantage in the use of these, and which applies to pyrometers in still larger degree, is that systematic attention to such observations sharpens the wits and stimulates the interest of the workman, increasing his efficiency and making him better satisfied with his job.

In the choice of a pyrometer it should be borne in mind that good results can be obtained with any of the standard makes. Ruggedness of construction and simplicity are of prime importance. The instrument is to be handled by men accustomed to heavy implements and the yard is usually some distance from the instrument maker's plant. It is important therefore that the design of the instrument be such as to make it easy to keep in working condition.

The most expensive equipment is not necessarily the best. This statement applies with special force to the choice of thermocouple to be used. Platinum thermocouples cost eight or ten times as much as the best base metal couples while they are no more accurate and have certain distinct features of inferiority. They have a scale which is open for high temperatures but twice as compressed at low temperatures where a few degrees error in the reading is much more important than at the higher ranges. The current generated by a platinum couple is but one-third that generated by the base metal couple, thus permitting a much more rugged galvano-



meter to be used with the base metal couple than with the platinum.

Certain experiments made by Professor Kowalke some four years ago on the permanence of base metal couples have been quoted against their use. These experiments did not include the couples which I am advocating. These couples are in use in more than seventy ceramic plants with entire satisfaction.

I feel that I am entitled to an opinion on this question since I have been studying thermocouples both from the commercial and scientific standpoints since 1900 and I have no financial interest in recommending an inferior article when the profits on the high priced platinum would be much larger.

There is another part of the pyrometer equipment where a saving in cost may be effected, but not in the same way as on the thermocouple. I refer to the recorder. It is desirable to have a continuous record of all kilns from start to finish. If a separate recorder is provided for each kiln on fire, both the initial expense and the cost of charts and attendance will be high. The use of a good multiple recorder greatly reduces this cost without in the least interfering with the efficiency of the instrument.

A recorder can be obtained which records the temperature at one time on the one chart of any four kilns in the plant. It may be made to record six as easily as four. The two records made by each of the two galvanometers are clearly distinguished, in that one consists of dashes and the other of dots.

D. W. Jasper Joins Bonnot Organization

D. W. Jasper has joined The Bonnot Company, Canton, Ohio, and will travel for them, covering Ohio and Indiana.

Mr. Jasper is a graduate of Ohio State University, Ceramic Department, and, since his graduation a few years ago, he has been constantly working in the clay-products field where he has had an opportunity to get practical experience. His connections have been with such well-known concerns as American Sewer Pipe Company and Robinson Clay Product Company and others of similar high character.

It will be Mr. Jasper's pleasure and duty to render all possible assistance to clay-products manufacturers in the states of Ohio and Indiana, helping them to solve their manufacturing problems of every nature.

How to Make a Crescent Belt Joint

Square the ends of the belt exactly. Have both ends true and clean cut—don't guess at it. Use a square and a sharp knife. Be sure you have the proper size Crescent Plate and proper length Crescent Rivet.

Place the Crescent Plate in position on one end of the belt. Use a holder to start the Crescent Rivet and be sure the prongs straddle the lengthwise fibres of the belt. Drive thru on a piece of wood, turn the belt over and clinch the Crescent Rivets with a hammer so the prongs hammer directly on the pulley or shaft, or piece of iron. Crescent Rivets are self-piercing and self-clinching.

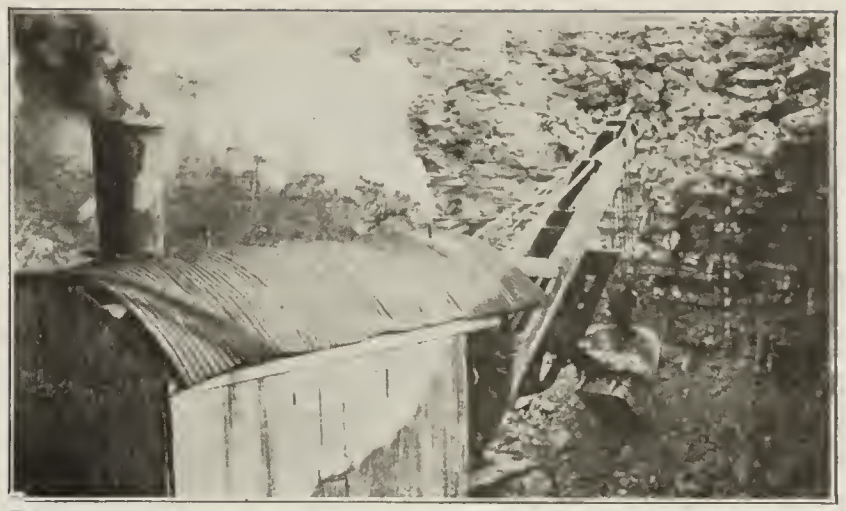
Draw the ends of the belt tightly together and complete the joint in the same way, except that in this case the two outside Crescent Rivets of the joint should be driven first and their heads should be slanted toward the joint. This draws the ends of the belts snugly together and makes a perfect butt joint.

We want to emphasize once more the necessity of having the belt ends cut true and square and of inserting the Crescent Rivets in just one way—with the prongs spread across the belt.

A Crescent joint made the right way—and the right way is as easy as any other way—will outlast the life of the belt itself.

When a belt must be put on before the ends can be joined together, attach the necessary Crescent Plates to the first end, driving and clinching all the Crescent Rivets in this one end. Make slots where the Crescent Rivets are to enter the belt in the second end—drive thru and clinch with a hammer on the pulley, shafting or a piece of iron.

It is a simple matter to shorten a Crescent-joined belt—it is done so easily and so quickly. Remove the Crescent Rivets from one end of the belt with a Crescent Rivet Extractor. Cut off the slack and re-join by using a row



Digging and Dumping
All Day Long

In order to keep a constant supply of material for the large capacity of their immense big plant, recently completed, the Streator Clay Manufacturing Company, Streator, Illinois, chose the

Thew Automatic Shovel

It is shown here, in the illustration above, "biting" into the hard shale, which it does with perfect ease. In the illustration below it shows the boom swung around to dump into the car.

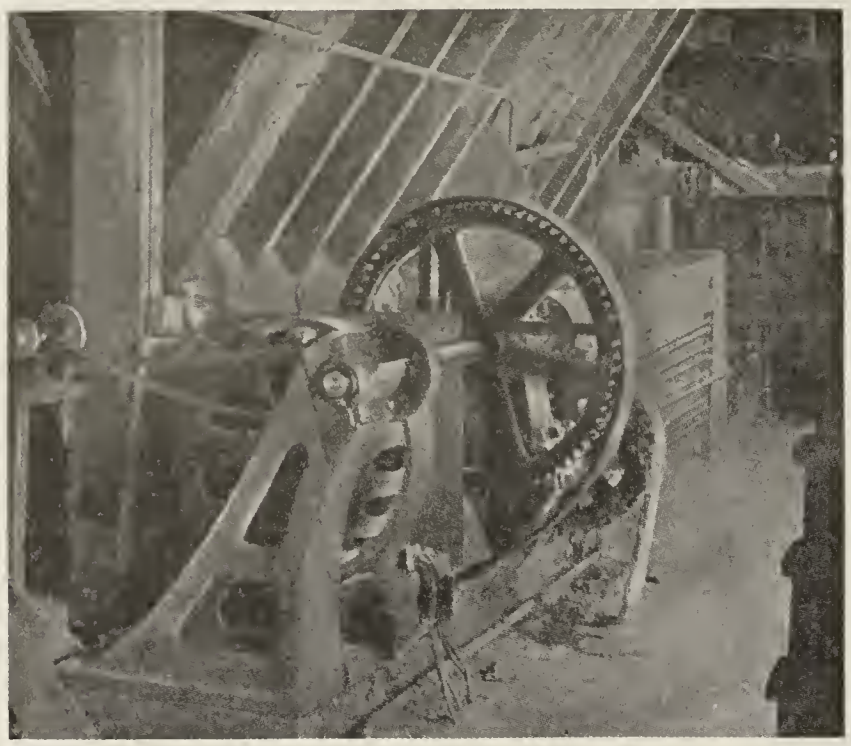
Thew Shovels have been doing this kind of work for many years and they are looked upon today as the ideal digger for clay plant work. Nearly 400 are in use in this industry. They operate with either electricity, gasoline or steam.

Write for Circular 27-C and list of users.

The Thew Automatic Shovel Co.
LORAIN, OHIO







"A Nuttall Cut Gear installed in our Plant has outlived three ordinary cast-tooth gears and is still good for long service."

NUTTALL
Cut Steel GEARING

is a distinct forward step in brick machine construction. Any old gear won't do—a cast-tooth gear won't do if you are expecting maximum power transmission.

Cast-tooth gears are power-wasters—they are inefficient through friction and irregularities in tooth construction.

Substitute Nuttall Cut Steel Gears and you'll save on power cost and repairs.

Ask for Bulletin No. 19.

NUTTALL
PITTSBURGH

of new Crescent Rivets. Crescent Plates will outlast any belt and can be used over again.

Crescent Belt Fasteners do not injure a belt in any way. All that need be done to disconnect a belt is to draw out the Crescent Rivets from one end. Re-join by driving new Crescent Rivets thru the old slots and clinching. And this joint, too, will easily "outlast the belt."

Complete information from the Crescent Belt Fastener Co., New York City.

* * *

Why—"Producer Gas in Drying"

By Messrs. Silverman and McElroy of the International Clay Machinery Company, Dayton, Ohio.

The other day a prominent clayworker said to us, "I can readily understand why producer gas is so economical with the continuous system of burning, but I cannot understand how you obtain the economy that you do in using it in a dryer where you do not have the help of the pre-heated air from the cooling chambers of a continuous kiln."

It does look questionable when you consider that the ordinary gas producer under plant operating conditions converts but about 75 to 85 percent. of the heat units of the fuel.

But after all the answer is simple. Actual tests on several direct coal-fired dryers show that there is generally passing through the grates in these dryers from four to eight times as much air as is actually needed to combust the fuel.

Necessarily the more air passing thru the grates, the more heat units are required to heat this air. A large percentage, therefore, of the coal's B. T. U.'s necessarily goes to waste. You cannot avoid it either, because fresh fuel on the grate bars requires much more air for combustion than a coking fuel bed.

On the other hand with a simple method of causing each furnace to pre-heat its own air of combustion a producer gas fired dryer can operate on about one and one-half times the amount of air actually required for combustion.

One producer gas fired dryer operated by a prominent officer of The Canadian National Clay Products Association, is drying wire cut brick made from Medina shale for 80 lb. of fuel per thousand. Other gas fired dryers



M. Silverman
With the International Clay Machinery Company



are operating for 100 lb. of fuel per thousand, a clean cut saving in fuel alone over the direct fired systems of from 50 to 100 percent. fuel cost.

This is but one of the many phases of the economy and efficiency of a gas fired dryer, but probably it has been the least understood.

* * *

Elect New President

At a recent meeting of Jenkins Bros., Farnham Yardley, son-in-law of the late Alfred B. Jenkins, and formerly vice-president, was elected president of the company to fill the vacancy caused by the death of Mr. Jenkins. Frank T. Swain, general manager of the company, was elected vice-president, and Samuel Laird, manager of the Philadelphia business, has been elected a director to fill the vacancy on the Board. With these exceptions the officers and directors are the same as heretofore.

The interests of Mr. Jenkins as a stockholder of the company will remain intact, under a trust created by his will, for the benefit of his descendants.

The policy of the company as laid down by Mr. Jenkins will be adhered to and maintained in all departments of the business.

* * *

Silent Chain Drives for Clayworking Plants

In explanation to the uninformed, a Silent Chain differs from the usual transmission chain which operates on toothed wheels, in that it is made up of links so constructed as to form teeth. These teeth mesh with the teeth of the wheels.

"Flexible as a Belt—Positive as a Gear—More Efficient than Either," is the slogan of a leading Silent Chain manufacturer. To this should be added "compact arrangement" and "long life," and in a few words you will have indicated the performance of the Silent Chain Drive. As there are now about 30 to 35 electrically equipped, Silent Chain driven clayworking plants in this country, some of which have been using this drive for more than ten years, it is sufficient to state that it is a proven product.

As to flexibility, some years ago a well-known manufacturer of sewer pipe installed a number of electric motors in one of his plants. He decided to connect up his wet and dry pans with a motor to each machine. This was accordingly done, and gear drive was used. Immediately trouble resulted, inasmuch as the motor was subjected to continuous shock from the grinding operations, due to the lack of flexibility in the gear drive. Very serious armature and



R. H. McElroy
With the International Clay Machinery Company



is a book every brick-maker should have

Your responsibility does not end with the turning out of a first class brick. You should know how to use your brick to show it off to the best advantage.

This book is a complete and clear manual of brick construction, designs and details. It tells what every builder should know of the classification and measurements of brick work, together with architect's drawings of framing for brick houses and the use of brick veneer.

If also tells of the miscellaneous uses of brick, including ornamental brick and tile work, chimney and flue construction, brick fireplaces, brick sewers, cisterns and flush tanks, etc. It tells the builder everything he should know to undertake brickwork and it is so clearly illustrated by details that there can be no uncertainty as to each successive step to be taken.

The designs in this book alone are worth the price.

GET ONE NOW

Price $1.00

Book Department

Brick and Clay Record

CHICAGO



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

general bearing trouble resulted quickly. Silent Chain Drive was then installed, and immediately the motor and bearing troubles were overcome. These chain drives are operating today just as satisfactorily as at the time they were put in.

Another instance is that of a concern making fireproof material, which electrified its plant a few years ago. An individual motor was installed for each machine, driving through rawhide pinions. At the same time one Silent Chain Drive was installed. Within three months it was found desirable to change all drives to employ Silent Chain. It was quickly demonstrated that Silent Chain was superior to the gear drive, because of its flexibility and ability to relieve the motor of sharp shock imposed by grinding and mixing operations.

Compact arrangement in the clay plant is of course of vital importance. As a rule floor space can be used to advantage, and the reader will appreciate this when he considers that a belt drive requires long centers for proper contact over pulleys. The chain drive not only affords very short centers, but it utilizes much smaller diameter wheels. As a matter of fact, the Silent Chain Drive accomplishes the same result, with much greater efficiency, in one-third to one-sixth the centers and space required by leather belts.

An interesting instance in this respect is that of an Ohio manufacturer of interlocking tile. Formerly his plant was steam driven, but later he found it desirable to electrify. It requires a 150 h. p. motor to operate the main lineshaft for the plant, which turns out approximately 125 tons of interlocking tile per day. It was found very desirable to place the motor in close proximity to the lineshaft, inasmuch as they wanted to utilize for the purpose the former engine room, which was small. A compact arrangement was easily



Silent Chain Strand

effected by the use of Silent Chain Drive on 4 ft. 6 in. centers, shown in Figure 1. If a belt had been used, centers of at least 20 ft. would have been necessary, and this would have necessitated an additional building, which would have sacrificed valuable floor space as well as appearances.

The speed at which clayworking machinery turns is slow, compared with the speed of machinery in many other industries, so the question of speed of the motors to be used is important. It is, of course, understood that moderately high speed motors are more economical both in first cost and maintenance. In the case of belt drive best results are obtained, not only on long centers, but on pulley ratios of from 3-to-1 to 5-to-1. This, therefore, necessitates a motor turning three to five times as fast as the machine or lineshaft, as the case may be. Here the Silent Chain Drive proves its economy even in first cost, in that ratios of 7-to-1 and 8-to-1, and even higher can be secured, permitting the purchase of the higher speed, economical, more efficient motor.

A fire-brick manufacturer, found, in changing over to electric drive, that the groupings of his machines were such that if he used belts floor space would be wasted. He employed individual motors for the different machines, connecting them with Silent Chain Drive. Some of his motors are connected up on 8-to-1 ratios, and in this way alone he effected a tidy saving in the motor costs.



Figure 2—Same Casing as Shown in Opposite Illustration, but with Oil Seals Removed

SAY I SAW IT IN BRICK AND CLAY RECORD

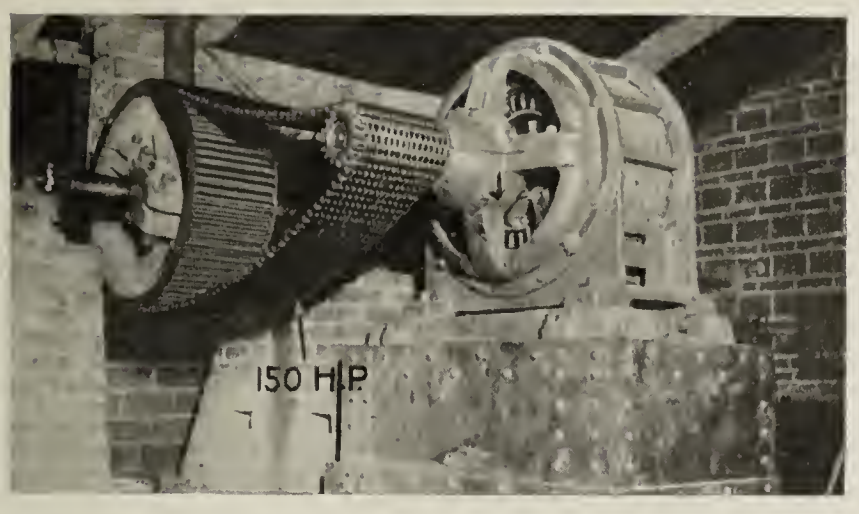
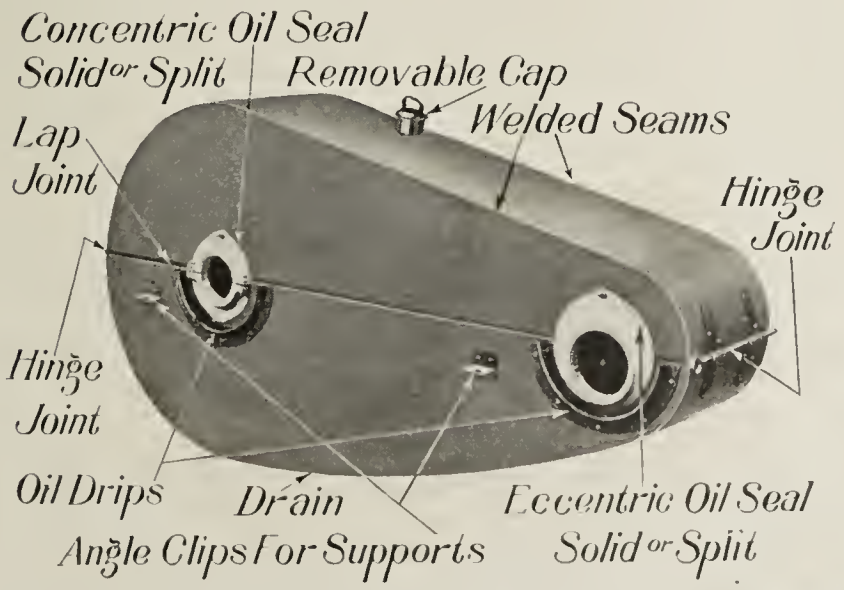


Figure 1—Showing Compact Arrangement Possible with Silent Chain Drive

The Silent Chain Drive makes a strong appeal to fan manufacturers, very particularly for induction and exhaust fans. One of America's leading ceramic fan engineers and builders expresses much satisfaction over the many Silent Chain Drives installed on his fans. He finds it a very convenient method. In many cases it is possible to build a much shorter fan house for the motor end by using Silent Chain Drive and eliminating long belt centers. In addition, the chain drive presents a much neater appearance, as well as higher efficiency. Standard casings can be secured to make the drives dust and oil proof, and affording "Safety First" for the workmen.

In the discussion of any type of power transmission one of the questions is "How long will it last?" This is a very natural question for the clay plant operator to ask, as he knows very well that the gritty atmosphere around his plant is hard on everything that turns, or moves. As is true of any machine or mechanism around the plant, it is a question of the life being proportionate to the care exercised. Some clay plants advise that they now have silent chains which have been in operation ten years, others, six to eight years, and at the end of that time the chains can be re-pinned and bushed at small expense, and continue to run. There is practically no wear-out to the large wheels, and when motor pinions show signs of wear they can be replaced readily, and at small cost.

Casings are absolutely essential. In fact, the manufacturer of Silent Chain will not recommend his drive without a suitable casing. The casing shown in Figure 2 is the best development of a silent chain cover, in that it actually keeps the dust out, and the oil in, allowing the chain to operate through a bath of oil at all times. The special seal, which is fitted over the openings, eliminates all possibility of dust getting into the drive. This casing was developed primarily for cement mills and the clayworking industry, and has proven very successful. It is made of heavy, hot, rolled steel, with welded corners and hinged ends, making it very convenient and accessible.



Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE
R. D. WOOD
AND COMPANY
Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.



Take a Good Look At The Photo Below

You can readily see that it's just as easy to operate our

ELECTRIC ELEVATING PLATFORM TRUCK

in and out of a kiln door as it is to run a barrow in or out. In fact, it's easier, because the truck is steady and there's no danger of a "spill."

But this is only one of many advantages our truck offers you. It carries six times as many brick as a barrow and travels much faster—it cuts out a lot of men. And there's no lost motion or time because the platform on which the brick rest is portable—while the truck is running there's a platform at one end being loaded and one at the other end being unloaded.

This is an economy that you ought to investigate. Let our engineers consult you about it and tell you what we can do for you.

The Automatic Transportation Co.

Buffalo, N. Y.



The casing shown in the illustration is manufactured by the Link-Belt Company, Chicago. The company issues a Data Book on Silent Chain Drives, which contains engineering data, and is illustrated with numerous pictures of the application of Silent Chain Drive to different types of machines and service.

* * *

Kiln Coal

It is totally unnecessary to say to the thinking clay-products manufacturer, except as a reminder, that low grade, cheap coal is the most expensive fuel that he can buy.

The correct coal is the one that best fits your conditions; the one that produces the required amount of heat energy with the smallest tonnage and the least labor and effort.

Given a coal that has the constituent qualities to produce a long lazy flame, that ignites quickly, burns freely with a small amount of clinker and ash and relatively free from sulphur, and we have "the correct coal."

To produce this grade requires not only a good mine, but it also requries that it be mined, sized, cleaned and loaded with modern coal mine equipment.

The Rutledge and Taylor Company of St. Louis and Chicago have in their Nokomis and Livingston mines all of the elements that combined produce a perfect kiln coal. The coal itself is found in marvelous thick seams, high in B.T.U. and low in impurities.

With modern machinery it is mined, elevated and passed over the picking tables, thoroly cleaned, sized and loaded into cars.

Each step that is taken is so taken that the customer is safeguarded at every turn, and, exactly what you order is delivered to your yard.

As noted before this is possible only because of exceptional quality in the coal itself and the costly machinery installed at each mine, designed to produce "A" grade fuel only.

Your burner and firemen will appreciate Nokomis and Livingston. They will be able to shorten their burns, and save a considerable quantity of fuel. It has been and is being done today on many mid-western plants, where the fuel costs have been appreciably reduced since using this coal.

It can be done on your plant as soon as you definitely realize that coal is more than just—black.

Today more than ever before, you must have the best coal, otherwise your profits will truly go up in smoke. Get an explanation, make The Rutledge & Taylor Company prove that Nokomis and Livingston coals are the best possible for use in burning kilns.

* * *

Abandoned Railroads Purchased

The Idaho Southern Railroad which runs from Gooding to Jerome, Idaho, and the Milner & North Side Railroad, a short line extending from Milner to Oakley, Idaho, comprising a total of approximately 50 miles, have been purchased by the Walter A. Zelnicker Supply Company, of St. Louis, Mo.

These railroads were built only a few years ago by Pittsburgh capital. It is understood the Walter A. Zelnicker Supply Company will dismantle the roads and sell the rails and other equipment, which are practically new.

* * *

The Brown Instrument Company, Philadelphia, Pa., are arranging for an interesting exhibit of their pyrometers at the McAlpin Hotel for convention week, and expect to be represented by Richard P. Brown, president; John P. Goheen, sales manager; George W. Kellar, advertising manager, and J. D. Andrews, New York representative.

* * *

At a recent meeting of the Board of The J. D. Fate Company, Plymouth, Ohio, H. S. Fate was elected president, Geo. B. Drennan, vice-president, and H. R. Sykes as treasurer and secretary.

GOOD IDEAS

don't cost you anything if you get them from the ads you see in "Brick and Clay Record." Read them.



The EDITOR'S CORNER

The Way Has Been Opened to Reach the Dealer and Carpenter Contractor

THERE is one factor in the distribution of any product that must be given due consideration. This factor is the dealer. Some lines of business have found it unnecessary to employ this factor in getting their commodity into the hands of the consumer but many branches of the clayworking industry are not in this class. Face brick is a clay product in the distribution of which the dealer can be used to advantage and we number among the most progressive of the concerns connected with clayworking several companies which do not have any manufacturing establishment of their own, but handle the products of other plants.

The clay products dealer is a permanent fixture in the industry and is one that is destined to grow in numbers and strength as the years pass.

LUMBER DEALER IN A NEW ROLE

That the lumber dealer, however, possesses possibilities for becoming a powerful factor in the distribution of clay products, particularly face brick, is a proposition that is comparatively new, to say the least. It was publicy suggested somewhat more than a year ago, by a man prominent in the sale of face building brick, that the lumber dealer is not at all adverse to handling face brick, and if given a chance, would prove of real value to the manufacturer. At that time it was remembered that drain tile in many cases has been marketed thru lumber dealers for some time and that, in view of this fact, it was not at all illogical to assume that face brick might also be handled by these merchants to advantage.

Since the lumber dealer has been offered as another channel for the marketing of clay products, the idea has taken root and has grown rapidly, so that it now has assumed fair proportions, and a campaign is under way to encourage these dealers in taking on a line of face brick and boosting the material. A class publication which reaches the lumber dealer in the small towns, as well as a substantial number of carpenter contractors, has opened its advertising pages to brick and hollow tile manufacturers.

After much paper and ink has been consumed in emphasizing the value of any intelligent advertising on behalf of clay products, the urging has finally taken effect and not a few manufacturers of the best-of-all building materials have bought space and addressed their message to the small town dealer and the carpenter contractor.

We heartily endorse this move on the part of the business journal to assist in making a larger use of clay products possible and believe that the situation presented by the co-operation of this magazine should be taken advantage of by the clayworking industry.

A TRIBUTE TO CLAY PRODUCTS

It is gratifying to know that a medium in position to act has taken upon itself the responsibility of opening its columns to brick and hollow tile manufacturers and is asking them to come on and take what belongs to them. This is not philanthropy. In fact, the trade journals that have been catering to the other building materials and that now open their columns to the clay products manufacturer, are taking a serious chance. However, they feel sure that burned clay wares are in the last analysis a necessity from an economic standpoint, and these journals are willing to throw their fortunes with the future of clay products.

But this will not do the industry a bit of good unless the brick and hollow tile manufacturers are listening to the knock of opportunity now.

We, who are familiar with the industry, know that burned clay products are best. Knowing a thing ourselves and making the other fellow believe it are two different things. No matter how good an article is, it must be advertised. "Brick and Clay Record" heartily endorses any collective or separate publicity or advertising campaigns launched with the least possible delay.

* * *

Clay Pipe's Superiority Still Stands

Without any thought of furnishing our readers with a hammer to "knock," but from the standpoint of one who is vitally interested in the manufacture of clay products talking to one who is engaged in the manufacture of these wares about a matter of interest to the industry, we wish to call attention to a recent advertisement inserted in a trade journal by the Cast Iron Pipe Publicity Bureau of New York City, a part of which reads as follows:

"When cast iron pipe is used for underground work it is only 'going back home'—where it has lived in its crude form (ore) for untold centuries.

"The same elements of analysis and structure that have preserved the 'native' iron lately discovered in the Basaltic lava of Greenland, which is of the exact form produced by the smelting of ores, has also preserved the first cast iron pipe ever made—now in perfect condition, after more than 250 years of underground service.

"This first cast iron pipe, like that illustrated here, is uncoated except by its own initial rust cover, which forms an effective barrier against further rust invasion."

Between you and us, there is no claim for durability in the above cast iron ad. that does not apply to vitrified clay sewer pipe. That laying cast iron pipe in the soil is a "going back home" process is true, scientifically, but the same can be said of the laying of a clay pipe, for is not that ware also a form of the earth into which it is placed?—the difference being that the raw material, clay, has been unchangeably fixed in a definite form by fire.

Clay wares in various shapes have been discovered which date their origin back much farther than 250 years. Adding a zero at the end of this figure will more nearly designate the age of some clay products which have been uncovered by archaeologists. The glazing of a clay pipe adds a feature to this product which makes it absolutely waterproof and gives it the ability to withstand for centuries the destroying effects of sewage and of corrosion. While these qualities can be claimed for the cast iron pipe, these claims cannot be substantiated.

It looks as tho the cast iron people will have to advance better arguments than those outlined above, if they are to convince the American public of the desirability of using cast iron soil pipe.

ATTENDANCE AT CERAMIC



GEORGE H. BROWN
Newly Elected President, American Ceramic Society

¶Enthusiastic Participation in the Discussions on the Part of Those Present Makes Annual Gathering in New York City on March 5, 6 and 7 an Enjoyable Occasion, While the Large Number of Eastern Ceramists Noted in the Audience Stamps the Nineteen-Seventeen Meeting as Highly Successful Insofar as Additional Support and New Interest in the Society are Concerned.

WITH A SNOW STORM as a greeting, New York received the members of the American Ceramic Society on Monday morning, March 5, for their nineteenth annual meeting. In spite of this handicap of bad weather and many other considerations which might have kept the ceramists at home, a record attendance was registered before the sessions closed. Fully twenty-five more persons attended the New York meeting than were present at any other gathering of the society, the total attendance being placed at approximately one hundred and seventy-five. More than one hundred registered the first day.

SESSIONS DISTINGUISHED BY HEARTY DISCUSSIONS

Not only were the meetings well attended, but those present were enthusiastic in their participation in the discussion of the many subjects scheduled on the program. Full, regular and prompt attendance marked the sessions which indicated that the members were interested in the matters brought before the society and believed them to be of sufficient importance to warrant their being present to hear what was being said. The result was that nearly everyone obtained a great deal of good from the deliberations.

The morning of March 5, as was announced, was given over to the consideration of the society's business matters together with President Barringer's annual address. In its report the board of trustees made special mention of the co-operation which "Brick and Clay Record" has extended to the society thru the addition of two new members brought about by the results of its first ceramic students essay contest. After hearing the treasurer's report, three committees were appointed, one to count the ballots for president and other officers, an auditing committee and a nominating committee, the duty of the latter being to report the candidate or candidates for president, the selection of which officer will be made just prior to the next annual meeting. Following the consideration of business Lawrence E. Barringer, president of the society for the past year, made his annual address.

In the afternoon at 2 p. m., the reading of the papers according to the list published in the February 27 issue of "Brick and Clay Record" was begun.

MANY ENJOY "MOVIES" AND SECTION "Q"

On the evening of Monday, March 5, at 8 p. m., the councillors for the local sections and student bodies of the society reported upon the growth and progress of their respective bodies, following which R. T. Clare of the Federal Terra Cotta Company, Woodbridge, N. J., explained a reel of moving pictures showing the processes of manufacture followed in his company's plant. These pictures are the best ever taken in a clay plant and ought to be viewed by everyone interested in the production of terra cotta. Professor Orton then gave a talk on military training and preparedness which was accompanied by two reels of motion pictures revealing the various phases of camp life at Plattsburgh. These pictures were of absorbing interest to everyone present, and that Professor Orton's talk was well received was indicated by the hearty applause given him. It will be no surprise to anyone to learn that the enlistments in the various voluntary short-term training camps will include this coming summer the names of many actively identified with the society.

Section "Q" was next in order following the motion pictures at which time-honored event the meeting took a

MEETING BREAKS RECORD

conversational turn, most of the members talking "shop" and seeking help from fellow ceramists. The refreshments served during section "Q" were very much enjoyed by all.

On Tuesday morning, March 6, the reading of papers according to the printed list was resumed, but in the afternoon the meeting adjourned to one of the lecture rooms in the Metropolitan Museum of Fine Arts, Central Park, where the esthetic side of clay products, particularly pottery, was considered.

OFFICERS AND NEW MEMBERS ELECTED

The morning and afternoon of Thursday, March 7, was occupied by the reading of the remaining papers scheduled, at the close of which a final business session was held when the officers for the coming year were installed, and new active and associate members elected. The officers for the coming year are as follows:

George H. Brown, director of the Ceramics Department, Rutgers College, president.

C. Edward Jackson, vice-president.

Edward Orton, Jr., Columbus, Ohio, secretary.

Ralph Kent Hursh, University of Illinois, Urbana, treasurer.

E. T. Montgomery of the DeWitt Company, Detroit, Mich., was the new member elected to the board of trustees.

NOMINATED FOR ELECTION AS ACTIVE MEMBERS

The following is a list of those nominated for election to active membership in the association, final action on which will be taken at the next annual meeting:

N. B. Davis, Ottawa, Ont.
Marion W. Blair, Thornton, W. Va.
George D. Morris, St. Louis, Mo.
F. A. Kirkpatrick, Pittsburgh, Pa.
H. G. Schurecht, Columbus, Ohio.
Raymond M. Howe, Pittsburgh, Pa.

ELECTED TO ACTIVE MEMBERSHIP

The following were elected to active membership:
Walter Angus Denmead, Schenectady, N. Y.
Carl B. Harrop, Columbus, Ohio.
H. B. Henderson, Columbus, Ohio.
W. L. Howitt, Perth Amboy, N. J.
C. J. Kirk, Newcastle, Pa.
E. P. Post, Elmira, N. Y.
F. W. Walter, Jr., Beaver Falls, Pa.
J. W. Ward, Dairy, Pa.

NEW ASSOCIATE MEMBERS ACCEPTED

The following is a list of those who were accepted into associate membership of the society at the New York meeting:

Alfred E. Blake, Robert Brewster, Wilbur F. Brown, John Boynton Davis, George Emery, Koji Fujioka, Albert C. Gerber, Harry N. Good, Edmund H. Haeger, Arthur Van Henry, Walter B. Kerr, Y. Kitamura, Carl H. Lawson, Earl Libman, Charles Lusby, T. Poole Maynard, A. Mioumi, C. N. Muesig, J. S. McDowell, Charles Pfau, Howard Gaskill Pike, Ralph S. Rhoads, DeWitt F. Riess, William J. Scott, Walter B. S. Stapler, B. T. Sweely, C. L. Wagner, H. A. Wegener, V. S. Schory, Ray H. White, Maurice B. Greenough, C. C. Ashbaugh, B. F. Drankenfeld, E. A. Madison, Scott P. Myers, B. B. Thompson, Albert S. Walden, E. E. Walker, Edward W. Washburne, Lyle S. Abbott, Edward E. Bartlett, S. Frank Cox, Garrison R. Hostetter, Charles W. Sax, Frederick L. Steinhoff, B. F. Carter, R. E. Davis, H. A. Huisken, Louis L. Byers, Gordon Klein, Leslie Brown, Paul E. Cox, Frank Sassetti, DeForest Grant, W. W. McDanel, S. I. Sewell, R. W. Earl, Erling E. Ayars, Leon B. Bassett, Godfrey B. Baker, David W. Jasper, C. H. Zwermann, Alexander A. Duval d'Adrian, Earl J. Moore, Morris C. Gregory.

At the closing business session a committee was appointed to make plans for a campaign for new members in the society. Committees on military and economic preparedness and on standards were also appointed.

THURSDAY'S INSPECTION TRIP

Members of the American Ceramic Society, forty in number, before leaving for their homes after attending the meetings in New York last week, paid a visit to Perth Amboy, on Thursday, March 8, to inspect some of the various clay plants in the Raritan river section of New Jersey. Headed by Edward Orton, Jr., secretary of the society, the members reached Perth Amboy about ten o'clock in the morning and spent the entire day in a tour of the different factories. Luncheon was enjoyed at noon at the Elks club. The master of ceremonies was August Stoudt and the party was in charge of Roy Minton of Metuchen.

The first plant to be visited by the society was that of the Atlantic Terra Cotta Company. Here they were greeted by Edward R. Proctor, superintendent of production, and L. M. Schindler, plant manager. The various processes were explained to the visitors who expressed great interest in the different operations at this progressive factory. Many questions were asked by the delegates and much food for thought and for the foundation of discussions at future sessions was derived from the visit to this terra cotta plant.

From the terra cotta plant the visitors were escorted to the factory of the C. Pardee Company, which makes a specialty of tile. At this factory the delegates were shown thru the different stages in the manufacture of wall and floor tile. The party was shown the various operations by C. F. Silert, the superintendent. The methods of glazing, drying and burning were carefully explained and fully an hour was spent at this plant. This proved to be another interesting inspection for the ceramic engineers who said that they found excellent conditions there.

DELEGATES VISIT FORDS PORCELAIN WORKS

Following luncheon, the visitors resumed their inspections with a visit to the plant of the Fords Porcelain Works, one of the largest of its kind in New Jersey. Here the different kinds of sanitary ware made were examined and explained by Abel Hanson, the president of the company, and several employes. Mr. Hanson showed with great pride, several pottery and sanitary ware products that were awarded medals and ribbons at the exposition in San Francisco last summer. Mr. Hanson had been attending some of the sessions of the ceramic society in New York and it was with great interest to the delegates that the different phases of production were shown them at the Fords Porcelain Works.

The last plant to be visited was the Didier-March Com-

pany. Several of the delegates had heard much about this progressive company in Perth Amboy, and what it means to the clay working industry, but few of them had ever been shown thru the plant. The men showed particular interest in the examination of an innovation of the company in the form of a continuous kiln, which is of great interest to clay operators and engineers at the present time.

Before leaving Perth Amboy for New York, the delegates in speaking with a representative of "Brick and Clay Record" marveled at the growth of the clay products industry in the Raritan river section of New Jersey and expressed great satisfaction with the visit.

* * *

Metropolitan Buys Bessemer Brick Plant

Announcement was made in the February 27 issue of "Brick and Clay Record" of action taken recently by the stockholders of the Metropolitan Paving Brick Company of Canton, Ohio, which involved an increase of $5,500,000 in the capital stock of the company, raising the capitalization to $7,500,000. It was stated that a large part of this increase would be used in the extension of the present plants and in acquiring new property.

As a part of the last mentioned plan, it has been learned from an authoritative source that the Metropolitan company has purchased paving brick plants Nos. 1 and 2 of the Bessemer (Pa.) Limestone Company, together with sites and certain rights in the clay deposits. The Bessemer Limestone Company will continue to operate its crushing plants and incidentally will supply shale for the operation of the brick plants at that point.

Claude C. Blair, formerly vice-president and general manager of the Bessemer Limestone Company, will become salesmanager of the Metropolitan company. Fred R. Kanengeiser, formerly general superintendent of the Bessemer plants, will become general manager of the Bessemer Limestone Company. R. C. Wallis, who was Mr. Kanengeiser's assistant, will be commissioned by the Metropolitan company to the management of the Bessemer brick plants. John R. Rowland, treasurer of the Metropolitan company, is severing his connections with that concern to become vice-president of the Mahoning National Bank at Youngstown, Ohio.

While there is somewhat of an understanding in the trade as to who will occupy the office of president and general superintendent of the Metropolitan Brick Company in the future, no definite action has been taken. Therefore, these officers will be announced at a later date. It is not believed that the personnel of the force at the Bessemer brick plants will be materially changed.

It is with great satisfaction that the members of the Institute of Paving Brick Manufacturers, of which organization Mr. Kanengeiser is president, have received in an informal way assurances that he will not resign his leadership for the time being at least.

FARMERS *to* LEARN *of* BRICK ROAD'S MERITS

THE first advertising campaign of a national character in the clayworking industry directed at a class of nation's taxpayers was launched a week ago at New York City. It has to do with paving brick, and while modest in its proportions, will be used to effectually reach the farmer with the message that brick is the most economical and durable paving material obtainable.

A GOOD START IS MADE

On account of adding to the membership of the National Paving Brick Manufacturers' Association, which maintains headquarters in Cleveland, Ohio, the board of directors of that organization has been enabled to authorize an advertising campaign, using as mediums those papers published in the interests of agriculture, in the hope and belief that this may be still further extended as additional membership and the necessary funds are secured.

It is true that the association has done some advertising but this has appeared for the most part in technical and trade journals. The new or additional campaign, as has already been explained, will reach for the first time nationally at least a portion of the country's taxpayers—the farmers.

Another matter which was brought up and disposed of at the sessions wherein the above campaign was authorized and which were held on Monday and Tuesday, March 5 and 6, was the yardage dues for 1917. It was voted that these should remain the same as heretofore.

The meeting as a whole was very harmonious and the members exhibited the greatest confidence as well as their usual zeal as to the promise of prospects for a good business during the months of the year which lie immediately before them. Unstable labor conditions and difficulties in transportation, together with the high cost of fuel, were elements of concern that received the most serious consideration. The paving brick manufacturers realize that these difficulties can only be surmounted by asking the public to pay prices commensurate with the cost of production which present conditions imposed upon them. It is not believed that the paving brick industry should be called upon to suffer martyrdom any more than any other interest in the country. However, it will not ask any more than is proper and right for self-preservation. This branch of the clayworking industry believes that the public will appreciate the difficulties of the situation that presents itself and be governed by them. Upon this basic belief the meeting bore an air of satisfaction and hopefulness.

EASTERN MANUFACTURERS DISCUSS SITUATION

Manufacturers interested particularly in the New York and eastern markets discussed the various phases of the situation, the result of which impelled the belief that the economy of brick is becoming more and more appreciated in New York and the eastern states. All of the paving brick manufacturers who found time to come to New York to attend these meetings received full and complacent satisfaction from their trip.

It was with great pleasure and much interest that the manufacturers inspected in a body the brick pavements at the Pennsylvania Railroad terminal in New York. These terminal streets, over which is borne the entire express, mail, and a large part of the passenger traffic that is carried from the great city over the Pennsylvania Railroad system, are giving excellent service under very exacting conditions. Trucks heavily loaded and equipped with the damaging single chain about the wheel rattle over these pavements without effect. Heavy coach and dray horses strike the pavement with all of their weight but there is no indication of the effect of such impact during the eight years which this pavement has withstood the terrific punishment it is receiving from the traffic that has passed over it.

TERMINAL PAVEMENTS MAKE DEEP IMPRESSION

These pavements were, therefore, viewed not only with the utmost satisfaction but with the inspiration and conviction that good construction brings to every man who sees great value and beauty in the care and pains with which a brick road is built. The manufacturers of paving brick who were a part of this inspecting body carried away with them a deep appreciation of what character in construction in the use of their brick means to them and to the indisputed supremacy of the brick highway.

The INCOMPLETE BUILDING SHOW

Only One Small Exhibit of Brick Graced the Second National Complete Building Exposition, Held at New York City, March 5 to 11

AN OPPORTUNITY, such as comes to individuals or industries only at widely separated intervals, was deliberately thrown away from March 5 to 11 thru neglect on the part of the manufacturers of brick and other clay products that enter into the construction of homes. Just what is meant by this statement can only be fully appreciated by those who visited the Second National Complete Building Exposition, held at the Grand Central Palace, New York City, at any time between the two dates mentioned.

BURNED CLAY HAS EXHIBIT AS PROMISED

As was promised by Robert C. Mitchell, salesmanager for the Barkwill-Farr Company, Cleveland, Ohio, and his colleagues who spent much time and money in endeavoring to arouse some interest and secure some financial support for a co-operative clay products exhibit, a display was installed at the show. But this was only made possible by the generous action of the Hay-Walker Brick Company, which concern added to the sum already raised, thus bringing the figure up to the amount necessary for the installation of an exhibit of clay wares. Only about $300 was received by Mr. Mitchell in response to his numerous requests for aid and with this small sum it was of course impossible to give clay products a proper representation. In fact, it was not enough to pay for the space occupied by the exhibit made possible by the Hay-Walker Company. The space in question was at the entrance of the show and cost $500.

LUMBERMEN OUT IN GOOD FORCE

The impression which the visitor received after having viewed the numberless displays in the exposition was that building brick needs a national association that will look out for its interests on just such occasions as this. One could not help being struck by the many and beautiful displays of the lumber industry. The National Lumber Manufacturers' Association, Maltese Cross Cedar Products, the Southern Pine Association, the Arkansas Soft Pine Bureau, Gum Lumber Manufacturers' Association, and the Southern Cypress Association, had exhibits which gave reasons good and sufficient to every thinking man as to why so large a percentage of America's homes are built of wood. The striking thing about the lumber exhibits was that they were association affairs.

VARYING OPINIONS

In talking with some local interests the excuse for the small amount of attention paid the show on the part of the industry was advanced that New York City is not much of a home-building community, a large part of its population living in hotels and apartments, and that furthermore, in the greater portion of the city one can use little else than brick. Others say that these arguments are without sufficient support and that vast sections within commuting distance of the great city form virgin soil for the cultivation of a tremendous clay products market. Why brickmakers do not take a more active interest in the development of such a market is almost inexplainable.

EXHIBITORS FIND MANY PROSPECTS

There is no question in the minds of those who have the welfare of the clayworking industry most at heart, but that an adequate exhibit for clay products at the show would have been of great benefit. While the attendance at the New York exposition was not nearly so large as at the first show held in Cleveland a year ago last month, it was found in peculiar corroboration of the experience of exhibitors at the "Sixth City" affair that most of the visitors were live prospects for business. In fact, a canvass of those in charge of the lumber exhibits disclosed the fact that most of them were well pleased with the results that they were getting from their space. The opening day of the show was marked by a blizzard accompanied by a heavy fall of snow which brought the attendance down to a low figure. The warmer weather which came as the close of the week drew near, brought a substantial increase in the number of paid admissions, and while the start was not very encouraging, the finish was declared to be satisfactory.

* * *

Greaves-Walker Leaves Sun Brick Company

Coming as a distinct surprise to his many friends in the industry, announcement is made by A. F. Greaves-Walker, formerly assistant general manager of the Sun Brick Company, Toronto, of his resignation from that position to become Baltimore (Md.) representative of the American Refractories Company. One of the first jobs in Mr. Greaves-Walker's new position will be that of supervising the construction of the new plant of the American Refractories Company at the above-mentioned point, which, if current reports are true, will be the very latest word in fire brick plant construction.

The Canadian National Clay Products Association, of which Mr. Greaves-Walker is president, tendered him a dinner and afterwards a theatre party upon his departure from Toronto recently, and also presented him with a beautiful cigarette case. However, what pleased him most was to find in what high esteem those splendid Canadian chaps held him, altho, as he states, "I was in Canada only four years." Needless to say, he found it very difficult to break away.

The Canadian association would not accept his resignation as president, on account of his leaving the Dominion, and therefore the moderator at the next annual gathering of that organization will be our good friend and brilliant contributor.

The hearty congratulation and good wishes of all who know him go with him to his new connection.

THIRTY-FIRST ANNUAL PASSES *into* HISTORY

Following a Most Strenuous Year of Business, Father Knickerbocker, in True New York Style, Plays Host to the Nation's Brickmakers Who Enjoy a Week of Sight-Seeing and Recreation in the World's Biggest City

WHETHER IT WAS the fuel situation, car shortage or labor troubles, or a combination of all three in the face of unprecedented demand for finished clay products, that kept the majority of manufacturers from meeting on Broadway, March 5 to 10, is a matter for conjecture. The brickmakers who did not journey to the world's biggest city for the annual get-together were certainly conspicuous by their absence. Someone advanced the theory that many were afraid to come to New York while the German crisis was at such an acute stage, fearing that coincident with a declaration of war by either side, the Kaiser would order his submarines to bombard the metropolis. Many were found who accepted this explanation as being entirely logical, especially those who happened to be in the McAlpin grill when a shot was touched off in the new addition to the subway which is being built beneath Broadway and which improvement passes directly in front of the McAlpin Hotel.

ATTENDANCE NOT UP TO EXPECTATIONS

In all about two hundred and seventy-five men engaged either in the manufacture or sale of clay products registered with the secretary of the National Brick Manufacturers between Monday and Friday, over which period the convention and its various ramifications extended.

The convention proper opened on Wednesday morning, March 7, with prayer by the Rev. James B. Wasson. Robert Adamson, Fire Commissioner of New York City, then welcomed the visitors to old Broadway on behalf of Mayor John Mitchel, who was unable to be present. R. C. Burton, of the Burton-Townsend Company, Zanesville, Ohio, responded to the Fire Commissioner's welcome. Mr. Burton gave way to Chas. J. Deckman, president of the association during 1916, who delivered the president's annual address. John W. Sibley, veteran treasurer of the N. B. M. A., read a very interesting financial report, which showed that the association had a surplus on hand of $997.53. This was announced as being the largest surplus ever reported since the organization of the association.

ELECTION OF OFFICERS

Election of officers followed the reading of Mr. Sibley's report, the time-honored custom being observed of moving up the vice presidents and electing a new vice president to fill the vacancy left by the third vice president, who becomes second vice president. W. K. Hammond, a prominent metropolitan brickmaker, was elected to the office of third vice president, the other officers for 1917 being as follows:

President: Fritz Salmen of Slidell, La.

First Vice President: George H. Clippert of Detroit, Mich.

Second Vice President: J. W. Robb of Clinton, Ind.

Theodore A. Randall of Indianapolis, Ind., and John W. Sibley of Birmingham, Ala., were re-elected secretary and treasurer respectively.

The report of the committee on technical investigation by Prof. Edward Orton, Jr., was scheduled to follow the installation of the above officers, but owing to the fact that Prof. Orton was busy with the annual meeting of the American Ceramic Society, sessions of which were being held at the same time at the Astor Hotel, it was impossible for this report to be made. It was, however, given at the final session of the convention on Friday.

"Our Fuel Problems," by F. R. Kanengeiser of Bessemer, Pa., was the first paper to be read at the initial session. Mr. Kanengeiser has been going thru some strenuous days lately in connection with the changes taking place in the ownership of the large paving brick plant at Bessemer, and so, while he was in New York, other matters prevented his appearing on the convention floor. This paper was therefore omitted, as was also the one which followed—"The Welfare of the Industry,"—at least that part of this subject which was assigned to John S. Haggerty of Detroit, Mich., who was absent.

In place of this paper or discussion Samuel G. Webb, chairman of the National Fire Resistance Council, New York, a man who has been active in promoting the use of fire resistant materials, spoke on the opportunities that were presented in an organization of all the manufacturers of such materials.

Moved by the feeling of the hour which was running high against certain senators who blocked legislation which would have provided for the arming of neutral vessels sailing from United States ports in order that they might defend themselves against the attacks of German submarines, G. W. McNees of the Kittanning (Pa.) Clay Manufacturing Company, introduced a resolution condemning the action of said senators as being unpatriotic, which was unanimously passed. This ended the first session.

ASSOCIATION WORK IN GEORGIA

The second session of the convention convened at ten o'clock on the morning of the eighth. The first paper on the program for this session was "Economic Competition Thru Associations," by C. B. Platt of Van Meter, Ia., but owing to Mr. Platt's absence, W. E. Dunwody of Macon, Ga., read the salient points of a paper which Mr. Platt had prepared and forwarded to the secretary. Mr. Dunwody followed with a discussion that was exceedingly interesting and full of splendid suggestions for effective association work. This gentleman gave the history of association work among the clay products manufacturers of Georgia and made every one present feel that that sort of thing is worth while, especially as he showed how from a group of distrustful and self-centered clayworkers an organization was formed that resulted in a standard size brick thruout the state, a better understanding among the members and increased prices following the revelation of manufacturing costs and the then existing prices. "Example is better than precept," according to Mr. Dunwody and he certainly showed what can be done by a little co-operation and getting down to business.

LIVELY DEBATE ON TECHNICAL INVESTIGATION

A. V. Bleininger of the United States Bureau of Standards at Pittsburgh, Pa., spoke on "Properties of Structural Clay Products," illustrated by lantern slides. So impressive was this talk that W. K. Hammond moved some action be taken to get this kind of information before architects, engineers and the building public. Previously, Prof. Bleininger, as he is familiarly called, expressed his regret at the lack of co-operation on the part of the brick manufacturers in failing to supply sufficient specimens for the tests being conducted by the bureau on behalf of the industry. This precipitated a lively debate which resulted in three different motions being passed, calling for two separate committees to see that this technical investigation work was followed up and the necessary funds raised to meet the expense involved. One of these motions called for a committee which was to meet immediately and determine upon a fixed sum to be appropriated by the association to prosecute the work of technical investigation. This committee was appointed, met later and reported back on Friday morning.

The discussion of the above matter consumed so much time that only one paper was read following it, that on "Mining Clay," (illustrated) by J. H. Squiers of Wilmington, Del. Mr. Squiers did not present himself but sent a substitute—J. B. Stoneking—who gave the talk on the subject already mentioned. Following this the session adjourned.

BRICKMAKING ON THE HISTORICAL HUDSON

"Brickmaking on the Hudson River," by W. K. Hammond constituted the first number of Friday morning's session. Mr. Hammond spoke in a very interesting and entertaining way of that part of the brickmaking industry which is located on the historical Hudson, where methods of manufacture have changed very little as the years have passed. It is true that some yards have departed from the beaten path and have installed electric or steam shovels to gather their clay and power driven carriers to convey the brick from the machines, but for the most part, the open drying yard bordered by crude molding machines with the long kiln sheds usually in the background make up most of the equipment. All of the brick on the North River are burned in scove kilns. Mr. Hammond's talk, which was profusely illustrated with lantern slides, revealed a curious fact, namely, that on the Hudson where little is required in the way of expensive machines and equipment are made the millions of common brick that are sold annually in the world's greatest clay products market—New York City.

Following Mr. Hammond, W. H. Taylor of the New Jersey Company spoke on the methods followed at his company's plant at Matawan, where producer gas is used as fuel in the burning of the brick and where many modern devices and machines are employed.

WHERE GIANT FINGERS DO THE WORK OF MANY MEN

"Handling Brick in Large Units," (illustrated) by Christopher Steadman recalled many scenes familiar to those in the audience who were acquainted with the methods followed in the Chicago district in the manufacture of common brick. A huge crane was shown on the screen as being the mighty power which eliminates all tossing in the setting of the scove kilns over on Staten Island, where Mr. Steadman's plant is located. The same or a similar giant also removes the brick from the kilns when they are burned, picking up 1,250 at one swoop and with a swing depositing this large unit in a waiting barge at the water's edge. Mr. Steadman's talk was received with a great deal of attention and his description of the large cranes as labor-saving devices made a deep impression upon the minds of his listeners.

While somewhat out of order, according to the printed program, but as a matter of convenience, owing to the stereopticon's being adjusted, Carl B. Harrop described the plant of the Hebron (N. D.) Fire and Pressed Brick Company. This talk was to have been given by W. D. Richardson, manager of the plant, but pressing needs at Hebron kept Mr. Richardson there and so he was not able to attend the convention.

"Beauty in Brick," also illustrated, was the subject of a paper read by Prof. Charles F. Binns of the New York State School of Clayworking and Ceramics.

TECHNICAL APPROPRIATION COMMITTEE REPORTS

W. H. Taylor, chairman of a committee which had been appointed on Thursday to meet and determine upon a certain sum to be appropriated for the prosecuting of the technical investigation work, reported that the committee, after a conference, decided to pursue the same course that has been followed in years past—that of setting aside a small sum, approximately $250 per annum, for the use of the technical investigating committee and to leave it to its own resources for whatever additional assistance was needed. Prof. Orton having appeared on the scene following the adjournment of the American Ceramic Society annual meeting the preceding day, a report of the technical investigating committee was given.

At this point the resolutions committee, headed by Warren Griffiss of the Baltimore (Md.) Brick Company, made a report, presenting one resolution proposed by Lambert Haigh, endorsing the investigation of coal prices now being carried on by the federal government. This resolution was unanimously adopted.

"Brick Vitrification" (illustrated), by Arthur S. Watts of the Ohio State University's Ceramic Department, followed. This talk was succeeded by "Brick for Paving Heavy Traffic Highways," (also illustrated) by Wm. C. Perkins of Conneaut, Ohio. F. A. Churchill, from the same town, was to have presented this subject but was not present.



W. K. HAMMOND
Elected Third Vice President, National Brick Manufacturers' Association

John W. Sibley of Birmingham, Ala., talked on "Brick Paving for City and County Highways," which was illustrated by lantern slides. The two remaining numbers on Friday's program, namely, "Brick Making on the Lower Mississippi," (illustrated) by Fred Salmen of New Orleans, La.,

and "Brick Making the Chicago Way," (illustrated) by Frank Lambert of Chicago, Ill., were not read.

THE SOCIAL SIDE OF THE CONVENTION

The smokerette, which was announced for Wednesday evening, March 7, was well attended. This function was held in one of the banquet halls of the McAlpin Hotel on the 24th floor, the ladies being present as was the case in Detroit at the 1915 convention.

The annual banquet of the association took place on Thursday evening, March 8, the following program being observed:

Program

Toastmaster, Wm. K. Hammond, New York City, "One feast, one house, one mutual happiness."

A Lady Fair, Thrift, the handmaiden of prosperity, Hon. James E. Watson, Washington, D. C.

Happiness, "The Hidden Soul of Harmony," Herman Mueller, Trenton, N. J.

Common Clay, "He's True to God Who's True to Man," The Very Reverend Luke J. Evers, New York.

"The World on Fire," An ounce of prevention is worth a pound of cure, Robert Adamson, Fire Commissioner, New York.

Sons of Adam, Come let us put our heads together and make a block pavement, Ross C. Purdy, Worcester, Mass.

Brick Musings, "We are of such stuff as dreams are made," Herbert Lounsbury, New York City.

The Hon. James E. Watson, U. S. Senator from Indiana, who was to be the principal speaker on the program, was unable to be present, owing to the necessity for his being in Washington at that time.

Detroit Manufacturers Discontinue Association

The resignation of William B. Wreford as secretary and manager of the Detroit Brick Manufacturers' Association, which became effective on March 1, marked the discontinuance of that organization. Starting nearly three years ago, when the price of brick was as low as $7.00 a thousand and the demand for brick at an equally low level, the association was formed with the purpose of increasing the use and sale of brick.

Conditions in Detroit at the present time constitute sufficient evidence of the fact that the aims and objects of the organization have been very completely accomplished and now being at a point where it is impossible to supply the tremendous demand for their product, the members felt that there was no longer a need for the association and decided to discontinue it.

Mr. Wreford, who was a former newspaper man and one of the best-known writers in the state, did splendid work for the association, planning many original publicity and advertising stunts that secured results. His address before the brick manufacturers assembled at the Cleveland convention last year on "What's the Matter With the Brick Business?" was so well thought of, that it was put in pamphlet form and distributed thruout the country.

Speaking of his resignation as manager of the Detroit Brick Manufacturers' Association, Mr. Wreford said: "No publicity office is necessary for the brick business. Business is going along at such a rate and will increase in the spring until the demand exceeds the production, so there is nothing for this office to do. I am going to take advantage of an offer which has been made me to take a rest for a few weeks."

Network of Brick Roads Covers Florida

John W. Sibley, secretary of the Southern Paving Brick Manufacturers' Association, in a recent issue of "Manufacturers' Record" writes that "nearly $500,000 is being expended in the De Land (Fla.) district in laying grouted brick highways. These roads lead from De Land as a center to lake Helen, Daytona, Orange City and De Land Junction, on the main line of the Atlantic Coast Line Railway. The last-mentioned road is to be extended to Crow's Bluff, on the St. Johns river, and it is stated that the Cycle steamship line is planning to put on a regular schedule of motor trucks, emphasizing one of the great benefits that accrue from building roads out of materials that will stand the test of the heaviest kind of traffic.

"It is predicted that the incoming Board of County Commissioners will soon perfect plans for the extension of the road system until every section of the county is provided for.

"Following the example of Volusia county, the adjoining counties of Seminole and Putman voted large bond issues, and are now constructing an extensive mileage of grouted brick highways, which, in addition to those already completed in other counties, will make a system of brick boulevards south from Jacksonville aggregating several hundred miles.

"The activity in road building is not confined, however, to the east coast section of Florida, as Hillsdale, Manatee, De Soto and Pinellas counties on the west coast, have also built, and have under construction several hundred miles of brick roads, while Osceola and Taylor counties will shortly let contracts for some fifty miles of brick roads."

Temporary Kilns Solve Shortage Problem

A striking illustration of the present flood of business thruout the south is afforded by the Malvern, Ark., plant of the Arkansas Brick and Tile Company. This concern, which is the reorganization of the Clark Pressed Brick Company, operates plants at Little Rock, Pine Bluff and Malvern, and maintains its headquarters at the first named city.

Due to the pressure of the immediate demand, two temporary scove kilns have been erected at the Malvern plant, whose production is ordinarily cared for by a sixteen-chamber continuous kiln, which has a capacity of 160,000 brick and which is gas fired. By an extension of the gas piping, the same type of fuel that is used in firing the continuous kiln is used to burn the scove kilns.

At the same time the temporary kilns were erected to expedite the manufacture of common brick, two round down-draft kilns were constructed for burning fire brick.



Temporary Scove Kilns (to the Left) Help Big Continuous Kiln (to the Right) In a Pinch

According to the present plans of the Arkansas Brick and Tile Company, the temporary scove kilns will, as soon as the present demand for common brick has been met, be replaced by additional fire brick kilns, and the Malvern plant given over exclusively to the manufacture of fire clay shapes of all kinds, while common brick will be produced at the Little Rock plant.

HOW ABOUT *a* DEPRECIATION FUND?

¶ *Money Charged off for Depreciation is Protection for the Capital of the Business, and as Such, Should Not be Used for Operating Expenses.*
¶ *This Being the Case, How Do You Handle Depreciation Charges? Is it Simply a Matter of Bookkeeping or Do You Actually Handle This Money That Has Been Set Aside?*
¶ *Some Light on This Problem is Given in the Following Article. It is Interesting! Read It!*

Some Valuable Thoughts Concerning This Important Phase of Business Management, Together With a Few Facts from the Experience of One in Another Industry

By G. D. Crain, Jr.

EVERYBODY REALIZES—or should realize—that a charge for depreciation of equipment and buildings is a necessary feature of every manufacturing business. It is a matter of common knowledge that machinery is wearing out, that some of it is obsolescent and must be replaced before it is ready for the scrap heap, otherwise the clay products manufacturer who figures his profits without taking account of this vital element is fooling himself.

DEPRECIATION CHARGES CONSERVE THE CAPITAL

What he is trying to do is to eat his cake and have it too. He wants to take maximum profits on the business that he does, without considering what is happening to the capital he has invested. As a matter of fact, depreciation charges are necessary in order to protect and conserve the capital investment, so that when the manufacturer gets thru he will have one hundred per cent. of what he has put into the business. If he has less than one hundred per cent. then the profits which the business was supposedly "earning" were in reality payments out of capital. But this is something which is not always appreciated.

However, most members of the trade are familiar with the arguments in favor of making a depreciation charge, and actually do make such a charge. An interesting question is often asked at this point, "What do you do after the charge is made? Is the charge merely a bookkeeping method, which appears on the statement, or is it a special fund created out of the proceeds of the charge?"

This raises a point which is worth discussing, even tho the expert accountant would probably pooh-pooh the idea of doing anything except including the charge in the statement, so that money which should be devoted to the depreciation account cannot get into the "balance" available for the payment of dividends. From his standpoint, it makes no difference what actual form this item takes thereafter, or whether its physical aspect is given any attention whatever.

SETTING ASIDE ACTUAL CASH

Nevertheless, one finds level-headed business men now and then who do believe in suiting the action to the word; in making a depreciation charge and then aggregating the results of it, so to speak. This means that this money will always be available for the purpose indicated by its nature, namely, the replacement of worn-out or obsolete equipment, thus protecting the business from the necessity of capitalizing improvements of this character.

These men do not merely show a $5,000 depreciation charge, or whatever it may be, on their books, for the purpose of making a statement, but when the charge of $5,000 is made, this money is actually set aside. It is invested in securities of gilt-edged character, and these are held until money is needed for replacing old machines. Then the securities are sold, the money realized being used in this way, and the actual capital of the concern is not touched. The depreciation charge thus becomes a real and constructive factor in the operation of the business.

The obvious objection to this method is that when this is done capital is withdrawn from the business which might be used to advantage. It is suggested that if the money were allowed to remain in bank along with the general funds of the concern, it would be of more use to the business than reposing in a safe or vault in the form of dead securities. It may even be pointed out that, not having the money in its most liquid form, the company may be compelled to go to the bank and borrow, when this would not be necessary otherwise.

OBJECTIONS ANSWERED

All of these objections are valid, but only up to a certain point. The depreciation fund is not inactive, nor buried, like the talent of the unprofitable servant. It is earning five or six per cent. interest, and if money must be borrowed, then that rate can ordinarily be realized, so that nothing is lost there. Furthermore, an additional answer to these objections is, the very fact that money is available for use in the business usually means that

its character, as for instance in its relation to a depreciation charge, is entirely lost sight of.

What happens? If new machinery is to be purchased to take the place of old, which is no longer delivering the production which is deemed necessary in order to keep up with the procession, the manufacturer may ask for the bank statement, and see that only a comparatively small amount of cash is available. Note, please, that he does not ask the bookkeeping department how much money has been charged off for depreciation, but only how much money is in bank! It is the money available from the results of the charge, after all, that determines whether it can be used or not.

If the company does not have the ready money with which to pay for the improvements, it has two alternatives. Either it can issue bonds or sell additional stock, something which is done not infrequently when improvements of this kind are undertaken, or it can do without the improvements. Many a manufacturer who realizes that his competitors have the edge on him because they have put in new and improved machinery to take the place of their old and antiquated equipment continue to do the best they can with the latter, because they "can't afford" to buy more. Yet they have been religiously making a depreciation charge right along, so that they have not been fooled, as far as the statement of profit and loss is concerned. But the fact remains that the depreciation charge has not insured the integrity of the capital investment.

DEPRECIATION MONEY MISUSED

They have used this, as well as other funds of the company, to take care of the payroll, to meet bills payable and in general for operating expenses. It is disposed of in some other way than in taking care of the depreciation which it was intended to offset. From this standpoint, it seems that the depreciation charge is merely an interesting piece of bookkeeping technique, but quite worthless as far as the actual progress of the business is concerned. In other words, the depreciation charge is a scrap of paper, whose violation in the every-day routine of business operation is taken as a matter of course.

From this angle it seems that the man who does not actually use the depreciation charge for the intended purpose is putting himself at a disadvantage. He may be doing a larger volume of business than the other fellow, but he is doing it under conditions which make for friction and worry. It is harder for him to get along, because he has deprived himself of the assistance which would be given him by the snug little fund actually made and provided to take care of depreciation, and used for that purpose.

ONE MAN'S INTERESTING EXPERIENCE

A certain manufacturer in another line announced a few years ago that this was his policy, and that he had a safety box in one of the local trust companies containing a good many $1,000 bonds which were purchased with the proceeds of the depreciation charge. That is, when the annual statement was made and a certain amount charged off to the credit of this amount, that amount was taken out of bank and put into standard securities—not war-brides—and held until the money was needed, when the securities were converted into cash and the necessary expenditures made.

Competitors of this manufacturer were inclined to give him the laugh when it became known that he was using this method. They could not understand why he thought it necessary to withdraw that money from the business, where it could have been used to advantage, possibly, and put into an inactive form of that kind. Yet it was noticeable that this concern always managed to keep in front in the matter of equipment. Its overhead and operating expenses were at a minimum, because it never allowed its plant to "run down." If a machine should be displaced, because it no longer met the requirements as established by modern appliances, it was displaced and the new equipment put in. So the manufacturer continued to make money, continued to charge off for depreciation, and continued to put bonds into the safety deposit box.

ANENT THE PURCHASE OF MORE COSTLY EQUIPMENT

It may be noted in passing that when a machine is displaced because it is obsolete, and a more costly piece of equipment substituted, the depreciation fund takes account only of the value of the old machine. That is, the difference between that amount and the cost of the more expensive machine represents new capital, and this is provided for out of current revenues or by the sale of stock. Depreciation funds are, of course, not intended to take the place of new capitalization when this is needed and is indicated by the character of the improvement.

Some brick manufacturing concerns may not believe that a separate fund of the kind suggested is desirable or practicable. Others may think that it would simplify matters to take a step further after making the charge, and to put the money into a separate account. It is not absolutely necessary to the use of the idea to convert the money into securities, altho this is a convenient method of handling it. A special bank account can be created for this item, so that the money might be used in case of emergency. But the point is that it should not be too easy to make use of the funds of the depreciation account for any other purpose.

That attention to the physical side of this question, thru the segregation of the money credited to depreciation, is desirable is indicated by the experience of a big trust company in Louisville, Ky. This company had about a million and a half dollars in its surplus. Its statements as compiled and published every year showed that its stockholders were so well off that the market value of the shares was more than double par. In other words, the surplus was figured into the current selling price of the stock.

LOOPHOLE WAS LEFT FOR EMBEZZLER

One day it was found that an assistant cashier or some other minor officer had been embezzling funds of the company, and that he had made away with about $1,400,000 in the several years that he had devoted to this interesting indoor sport. That is, the money which had represented the surplus to the credit of stockholders was, as a matter of fact, a fiction, carried in the statements, thru the cleverness of the embezzler in covering up his tracks. They had been deceived by the paper statement, because no attention had been paid to seeing that this amount in securities was present in material form in the company's vaults.

If your depreciation account has an entity of its own, you will always know you have it. And you'll not be tempted to "rob Peter to pay Paul."

* * *

Fire Destroys $1,000,000 California Plant

The $1,000,000 plant of the Steiger Terra Cotta and Pottery Company located at South San Francisco, Cal., was razed by fire on March 9. Only the office building of the plant, which covered three acres, was saved. The origin of the fire is unknown.



The Presbrey Fire Brick Works as Seen from the Loading Track

A VETERAN ENTERPRISE *in an* HISTORIC ENVIRONMENT

A Little Journey to a New England Fire Clay Stove Lining Plant

NINETY YEARS of making stove linings from fire clay with a market that is increasing daily, is the commendable record of a New England refractories manufacturer—the Presbrey Fire Brick Works at Taunton, Mass.

Since 1826, when Wm. B. Presbrey started a fire in a shed and from a little mound of clay turned out the first Presbrey stove lining, until today, when five acres of land and a three-story building are necessary for the accommodation of the plant, this concern has been turning out stove linings for American households. The first stove that ever went out from the town of Taunton—now a city famed for its manufacture of heating and cooking apparatus—had linings that were made by the Presbrey concern, fashioned from clay brought by tedious carting from the shores of Martha's Vineyard. Today, railroad cars heaped with clay from a special deposit in New Jersey, line the Presbrey siding and hundreds of stoves in all parts of the country leave factories daily with Presbrey linings in their fireboxes.

MAKING LININGS NOT AS SIMPLE AS IT SEEMS

The manufacture of stove linings from fire clay, altho appearing to be a simple process, is complication itself. The above mentioned concern, according to B. C. Pierce, who for fifty-six years has directed its destinies, is claimed to be the only plant in the country making stove linings out of fire clay and using a double-decked kiln.

The whole secret of making good fire-clay stove linings, according to Mr. Pierce, is in the mixing and burning. "Our methods today are seemingly identical with those in use fifty years ago, but by improved mixing and our process of making—which is unlike any other method in the world—we believe that our fire brick as typified in Presbrey stove linings, stand alone in the American industry."

The Presbrey plant is an unassuming place and Mr. Pierce an unassuming man. One, perhaps, the only one, of his distinguishing peculiarities is that he always carried a paper-weight in his hip pocket. This paper weight is a most useful article and is made from the fire clay that has made the Presbrey five-pointed star famous. Hundreds of these paper-weights have been distributed thruout New England and Mr. Pierce has personally distributed every one, which probably explains the presence of the paper weight in his pocket.

PLANT USES NEW JERSEY CLAY

The process followed at the Presbrey plant in making stove linings is very interesting. "All of our clay comes from New Jersey," said Mr. Pierce as he took his visitor into the depths of the plant. "We find that from a special deposit in that state we can obtain clay which, thru its remarkable non-shrinking qualities, constitutes the best raw material that we can find for our purpose." Each year, Mr. Pierce explained, seven thousand tons of clay are mined in New Jersey, loaded on cars and brought to the Presbrey plant.

From the cars, wheelbarrows convey the clay to the old-fashioned mixing pit, in the center of which is a pivot from which revolves an enormous wheel, appearing much like a cart wheel. Seventy wheelbarrow loads—fourteen tons—of clay are dumped into the pit and four expert mixers with shovels, throw in the proper mixture of—(just what goes into that pit is one of the secrets of the Presbrey concern). Suffice it to say, when the mixing is completed and the clay ready for pugging, it is a soft and clammy substance. For four hours the wheel in the pit, driven by a steam engine, rolls thru the clay and its other ingredients and then with their wheelbarrows men carry it to the molders.

In explaining the old-fashioned method of mixing, Mr. Pierce said to his interviewer, "Fifty years ago Mr. Presbrey mixed clay that way, not quite the same as far as ingredients are concerned, but in the same manner. Presbrey linings get their reputation with that mixing and they are molding it in the same old-fashioned way. We are not old-fashioned; we are progressive, but to mix clay for fire-clay linings, our method has proved the best."

GREAT CARE TAKEN WITH EACH PIECE

In the molding room, wheelbarrow loads of soft, sticky clay are dumped on pallets, a molder slams a mold, much like the

housewife cutting biscuits, down into the mass, scoops off just the required amount and the lining takes its first form. One hundred sets to the ton—fourteen hundred sets of linings to the pitful—are completed before mixing starts again. A different mold and a different molder is used for every one of the six pieces that constitute a Presbrey lining. Every man is a specialist on his particular piece and the care and time that he takes with it explain why the linings from this particular plant are held in high esteem. From the molding benches to the first dryer where the linings take on a semblance of firmness, is the next step in the manufacture of this product. From the dryer the linings pass to the marking bench to be cut and marked there and then they go to the finishing benches.

Mr. Pierce hastened to explain that the process in vogue at this plant for manufacturing stove linings is not rapid but on the other hand, is slow and thoro. The care taken in the finishing of the linings was a lesson in thoroness to the writer. Each lining is finished as carefully as if it were an intricate part to be placed inside of a delicate time-piece. Instead of a rough surface, the Presbrey linings are smooth, fine appearing pieces of workmanship which, according to Mr. Pierce, do not invite the formation of clinkers on their surfaces when they are in use in the stoves in American homes.

At this point Mr. Pierce took his visitor into his confidence just a bit in regard to the mixing process and said that there is not one grain of sand in any lining or fire brick that leaves his plant. "Sand weakens a lining," he said, "and no Presbrey lining ever knew any sand."

From the finishing bench where they leave just hard enough to be handled safely, the linings go to a huge flat dryer where for twenty-four hours they dry slowly and practically all of the water disappears.

WARE BURNED IN DOUBLE-DECKED KILNS

Then, to the kiln, and the kilns at this factory are very much unlike those seen in the usual clay plant. They are double decked and are lighted with electricity inside while being set. They are cone-shaped structures, extending from the cellar to the roof of a three-story building, and hold thousands of linings. Hard coal, then coke, then soft Cumberland coal is used in the fire boxes in burning the ware, which period extends over four days. Then the kiln is allowed to cool off four days.

"The process of mixing is vastly important," said Mr. Pierce, "but the process of burning is the real secret of good linings. The fire starts slowly, goes thru the entire kiln and out of the chimney. A degree of heat reaching as high as 2,800 to 3,000 degrees Fahrenheit is used in burning Presbrey fire-clay linings." According to Mr. Pierce, it is necessary to heat up the ware very slowly and steadily and cool it as carefully. Even a slight deviation from a determined course of burning or cooling is sufficient to make a whole kiln of inferior grade.

Speaking of the rising price of stove linings, "the increased cost of stove linings today is being brought about at their very origin, namely, in the clay deposits of New Jersey," said Mr. Pierce. "The clay miners have been taking positions in munitions factories with the result that mining is more costly, in addition to which freight rates have been greatly increased."

A GOOD AND INCREASING MARKET FOR LININGS

"Our market," he went on, "follows the lines of anthracite coal consumption. One secret of our success is that we understand the foundries to which we supply our product. Each kind of stove may require a different quality lining. Out West where they use natural gas for cooking and heating, there is little market for stove linings but here in the East there is a large one. Our linings go all over New England, to New York, and to the West as far as St. Paul, Minn., to Chicago, in fact wherever there are stoves used. There is a good market for linings and it is steadily increasing."

On exhibition at the Presbrey offices are catalogs dating back as far as 1864 and 1866. There are also hundreds of letters, in sets, each set the history of a search for a new and better clay deposit from which to obtain the raw material to produce the Presbrey five-pointed star lining.

WAR FORGOTTEN *in* DETERMINATION *to* BUILD

BUILDERS AND INVESTORS are not "seeking the tall timber" as the result of the war clouds. Neither are they retreating before the highest prices for materials and labor. New York, Philadelphia, Buffalo, Syracuse, Albany—all report gains. In the city of New York alone the total estimated outlay for new buildings in the first two months of 1917 was nearly $25,000,000, and this in the time of a two-fold crisis—an international crisis and a crisis in the prices of commodities.

Despite the war clouds, regardless of the fact that everybody says we are but a step from the awful brink that means for America no man can tell what, and notwithstanding the almost prohibitive prices of everything from potatoes, onions and sugar to brick, lime, cement and plaster, great floods of gold, sweeping into the real estate market, show no signs of being curtailed. While the United States government, to protect New York from enemy raiders, hurriedly erects powerful additional fortifications on Long Island and stretches steel wire nets from Rockaway Point twenty-four miles across the waters of lower New York and Raritan bays to Sandy Hook as President Wilson wrestles with the problem of arming American merchant ships, keen New York business men, with the faculty of looking well into the future and credited with always being wise enough to "look before they leap," are as hopeful and as optimistic as tho the whole world was at peace.

Since the first of the year more than $125,000,000 in gold has come into the country and the flow is expected to continue until it reaches $200,000,000, which will give bankers a potential lending power of fully $1,000,000,000 to strengthen the foundations of current prosperity. In nearly all building lines, those who speak with authority still predict, as "Brick and Clay Record" chronicled toward the close of 1916, that 1917 will run well ahead of all other years and especially ahead of 1915 and 1916, which together make the most important two years of construction in the history of the largest city in the world. The huge money supply is taken as a guarantee of big construction for a number of years to come, even tho there should be a shrinkage in the tide of business expansion. This is because the abundance of capital is considered to be far beyond all needs and much of it now used in a semi-speculative manner would ordinarily seek solid long-time investment, with the appearance of industrial reaction. In times of stress, real estate lodgment appeals as conservative and best.

BUILDING EXPERIENCES NOTABLE EXPANSION

There has been a notable expansion in all types and classes of new buildings and plans now on architects' boards indicate a strong continuance of this trend. Altho the soaring costs of materials would tend in normal times to automatically check the building movement, demand for new accommodations is pressing steadily ahead of supply and, in addition, a good surplus of capital is nat-

urally seeking employment so fast that builders can get plenty of money for reasonable operations.

BUILDING JUMPS IN MANY STATES

That New York is not the only bright spot on the map is evident from the report of the F. W. Dodge Company, just issued, which shows gains in comparative statistics of building and engineering operations in New York, New England, New Jersey, Pennsylvania, Maryland, Delaware, District of Columbia, Virginia, Ohio, West Virginia, Illinois, Indiana, Iowa, Wisconsin, Michigan, Minnesota, North and South Dakota, Missouri and Eastern Kansas. The total is $186,041,000 against $129,065,000 a year ago, $92,684,000 in 1915, and $90,164,000 in 1914.

MANHATTAN LEADS NEW YORK SECTION

For New York and northern New Jersey, the metropolitan district, $42,228,000 compares with $15,298,000 last year, $21,836,000 in 1915 and $16,048,000 in 1914. As usual, Manhattan leads, its plan filings for two months calling for an outlay of $13,000,000, of which $2,000,000 was for alterations. It should be noted here that this is nearly double the figure for the corresponding period of last year. The filing of plans for a thirty-five story office building to cost $4,500,000, and to overlook the historic Trinity churchyard, is responsible for jumping the figures for new buildings for the seven days from February 16 to February 23, to $6,047,500, as against a mere $520,000 for the corresponding week of 1916. Figures for January and February of last year were $6,900,000 for new work and $2,250,000 for alterations.

Brooklyn is holding her own, both in new structures and alterations, as compared with the first two months of 1916. Approximately $6,200,000 in new building plans was filed in January and February of each year and alterations in 1917 total $557,160, as against $589,145.

The borough of the Bronx is falling behind, the cost of new buildings for the first two months of 1917 being $1,246,925, as against $3,515,400 for 1916. Alterations for 1917 total $147,225, against $121,175 for 1916. Queens has also fallen down hard, having in the first two months of 1916 filed plans for 854 buildings costing $3,482,767, while so far in 1917 there have been filings for 460 buildings costing $1,530,962. Alterations for both years run about $146,000 each. In proportion the smallest borough, Richmond, in value, shows up better than any of the boroughs, and shows filings aggregating $480,058 for 1917 and $149,495 for 1916. Alterations for 1917 total $80,190 as against $22,469.

MATERIAL PRICES TO GO HIGHER

The fact that 1917 building season has really not opened as yet has set those of a statistical frame of mind to thinking and doing a bit of figuring. The Dow Building Report Service, for instance, has completed an exhaustive study of the situation and much interest is shown in its announcement that construction costs at the opening of the 1917 building season will be still higher than the lists heretofore prevailing. This authority says that evidence of this upward fluctuation was apparent the first week of this month.

Speculative and investment builders are said to be the chief sufferers from the existing high prices of materials and supplies, but they seem to take it for granted that not only is there no relief in sight or recession in prices seemingly possible at this time but, on the contrary, take considerable stock in the suggestion that in several commodities the peak has not yet been reached. The tendency is, according to the "Real Estate Record and Guide," toward further advances in substantially all lines of building commodities. This authority asserts that, considering the limitations in supply and the heavy demand for practically all materials, present prices will be thought almost nominal when compared with those likely to obtain by the time the building season becomes really active.

WOMEN RIOTERS DROWN BUILDERS' OUTBURSTS

The agitation in New York over the advanced cost of building materials has recently "taken a back seat," as it were, because of the real noise made by women rioters clamoring for cheaper food, the outbursts against the high cost of living in general, and the newspapers' protestations against the high cost of publishing with a consequent raise in the prices of all daily and Sunday newspapers. It is because of the fact that everybody is being hit by the increased cost of something or other that those who were wont to howl about the increased cost of building have become silent.

An interesting reason advanced as a factor in the high cost of building materials is that options are being taken on commodities of all descriptions in gigantic quantities, by concerns making plans to ship knocked down buildings to Europe by the million dollars' worth, just as soon as the present war ends. There would appear to be some logic in this, altho some contend that, with the United States embroiled, even this condition might change.

MANY ANGLES TO LABOR SITUATION

A ray of light on an otherwise complicated situation is the improvement in the labor supply due to the recent release of many laborers and skilled mechanics by munitions plants that have completed contracts with European nations and who have not received new contracts because English plants are now able to cope with the demand. But how long this condition will last is entirely problematical. With the United States forced into the war, there is bound to be a call for all available men both as defenders on the battle line and as laborers in munitions plants. Couple this with the fact that the war has practically stopped emigration, and will surely stop it if the United States has to do some fighting, and even the most optimistic citizen has to admit that no man can tell what a day may bring forth.

INTERESTING COMPARISON OF PRICE SCHEDULES

A comparison of present prices of building commodities with the price list of a year ago is interesting. Hudson River commons now selling at $10 were then quoted at $8.75. Raritans quoted now at $10.50 were quoted at $9. A year ago a load of 1,500 second-hand brick could be purchased at $3.75 and today the price is $5. Portland cement today is $1.97 and a year ago it was $1.67. Rosendale is unchanged at $1. Inch and a half gravel that sells today for a dollar was eighty-five cents a year ago. Three-quarter inch gravel is quoted $1.25 today as against eighty cents last year. Exterior 4x12x12 hollow tile quoted today 0.0825 a year ago was purchasable at 0.0625. Pig iron No. 2, Philadelphia, sells for $33 today compared with $20 last year. Finishing lime last year at $1.55 now sells at $1.85, and common lime which sold last year for $1.15 to $1.37½ is quoted today at $1.60. Hydrated today is quoted $11, against $8.50 last year. Spruce lath today is $4.25, compared with $3.75. Raw linseed oil has jumped from seventy-eight cents to ninety-seven in the year. Mason's finishing plaster advanced from $9.50 to $15 within the year. Sand today costs fifty cents and a year ago it was forty. Crushed blue stone 1½ inch today brings $1.10, as against ninety cents a year ago. Three-quarter inch today is $1.20 and a year ago it was $1. Trap rock 1½ inch today is $1.15 and last year it was ninety-five cents. For ¾ inch you pay $1.25 today, while a year ago it was eighty-five cents.

CLAY PRODUCTS *in* ENGINEERING CONSTRUCTION

How Inferior Mortar, Poorly Drawn Building Laws and Inefficient Labor Place Unnecessary Handicaps Upon Clay Products as Constructional Materials

By E. H. Darling, M. E.

A Paper Read at the Convention of the Canadian National Clay Products Association, Hamilton, Ont., January 23, 24 and 25, 1917.

OF ALL WRITERS OF FICTION there has been none who has more highly honored the engineer than that friend of our boyhood—Jules Verne; and in none of his writings does he pay a higher tribute to the profession than in the story "Dropped from the Clouds." This story tells how an engineer and four or five companions are cast on a desert island which abounds in water power and all other natural resources and here the engineer, starting with little more than a jackknife and a burning glass made of two watch crystals, gradually produces all the more important requirements of civilization. Making due allowance for the superhuman physical feats performed by the small gang of workmen there is nothing impossible in this story of industry. An engineer who has to handle fundamental problems of construction in any line, should have a working knowledge of the processes of the manufacture of the materials he uses. He is, in a sense, a manufacturer himself, especially when he superintends work of construction, making a higher order of product from the lower or raw material. He has not only to build structures, but he has to build for permanency, and at the same time with the minimum amount of material. He has occasionally to use these materials in unusual ways and under severe conditions. The greater confidence he has in what he uses, the narrower is the margin he may allow for safety. Hence his interest in manufacturing processes; hence his provoking (?) habit of drawing up rigid and rigorous specifications and his insistence on a high standard of product.

Fifty or sixty years ago there were very few of what could be called standard forms of building materials for engineering works. The engineer had not only to design his structure, but every detail of it, and then have the various forms manufactured specially for that structure. Gradually manufacturers grasped this engineering attitude, and got his view-point, and as occasion warranted, they employed their own engineers and technical men. They got together in one way and another and agreed on standards of forms, shapes, chemical and physical properties, and so forth, so that today the engineer has at hand a vast variety of standard material which he can specify with the same confidence as tho it had been made specially for his particular work. This standardization of manufactured products was one of the great contributions which America made to the world's industry during the last century, and it has been a very important factor in the development of this continent.

WHERE A BROADER VIEW IS NEEDED

However, it sometimes happens that the manufacturer of newer or smaller lines of products, intent on his own particular work, needs something to give him perspective—a broader grasp of what he is doing, and of the purposes to which his products are to be put. There is no doubt about it that there are many splendid ideas and valuable materials which now have no market simply because they have never been scientifically investigated, and their practical value demonstrated to such a point that engineers and other builders can specify them with confidence. It is in this field that the recently organized committee of scientific and industrial research will give valuable assistance. This is the basis of all engineering endeavor—the uniting of the theoretical with the practical—"applying the results of what has been learned everywhere to the matter in hand." And so it may yet be found that even in the manufacture of clay products, altho of ancient origin and having seemingly simple process of manufacture, there are possibilities of development that are at present undreamed of. There is this reservation, however, if the product is for architectural uses, the manufacturer and engineer may do their best and fail, unless the results satisfy the requirements of the rules of architecture. These statements regarding the co-operation of the manufacturer and engineer have reference to the products themselves and to the uses to which they are put, but they are equally true when applied to the routine processes of manufacture. That is an entirely different branch of engineering, and while the writer is not in a position to make a sweeping statement, yet in one or two plants he knows of, they have hardly yet begun to apply the principles of efficiency which are doing so much for other lines, toward the cutting down of costs of manufacture and to the increasing of capacity.

Clay products perform many important services in all the various fields of constructive engineering. Their uses may not be as spectacular as that of some materials, but they are none the less most valuable. Clay, when properly treated, is a very poor conductor of heat and electricity, and very inert to chemical action, and most of its value in construction is due to these properties. The fact that it is a common material, widely distributed and found in a natural state, is because it is a stable chemical combination under all natural conditions of atmosphere and climate. When baked, burned or fused, it undergoes certain changes which tend to make

it even more stable or inert to deteriorating chemical forces. All such other materials, as the metals, which are obtained by tearing them from the rocks by intense heat, or such as timber, which is built up by organic life, while stronger, hard and more elastic than clay products, they are not as stable, and they always have a strong tendency to return to their original state—to rust, decay, soften and disintegrate.

The writer has observed that in the carrying out of any important engineering work, the problems which call for the most careful attention and sound judgment are not so much those which have to do with the design of the body or main members of a structure, as those which relate to the stability of foundations and the protecting of the work against the destructive agencies of moisture and temperature of water and fire, corrosion and decay. For example, it is not a difficult matter to design a retaining wall, assuming certain conditions of foundation and backing, yet probably with the exception of dams, there is no class of engineering structure that has a larger percentage of failures than retaining walls. It requires better judgment—the outcome of experience—to so drain away the water which is likely to collect and alter the assumed conditions, than it does to design the wall. The same thing applies to road building and to foundations in general.

The electrical engineer would have no difficulty in high voltage transmission were it not for the problem of insulation. It would not be difficult to heat a building were the exterior walls perfect non-conductors of heat. All large sewers might be easily built of concrete, were it not for the fact that certain kinds of sewerage disintegrates Portland cement. All the study and thought put into the steel frame work of a sky scraper is rendered worthless in a few minutes if there has been carelessness in protecting it from fire. All these problems and many more like them, which in a sense may be called the finer problems of engineering, depend on clay products in the form of drain tile, insulators, brick, glazed tile, hollow tile, and so forth, for their solution. We use clay products for permanent construction, and where strength is essential we build a frame work or skeleton of wood and steel, and protect them by a covering of the more durable material. It must be remembered, however, that what is true of clay applies more or less to certain other products of the earth, such as Portland cement, asbestos, mica, siate, and so forth, which also have their place in construction.

GREAT FUTURE FOR CLAY PRODUCTS

But while clay products thus perform many services in construction, the end has by no means been reached. There is room for improvement in the way they are utilized, there are doubtless new uses to which they could be put, and besides, the demand for their use could be greatly increased. The following brief discussion will offer, from an engineering standpoint, a few suggestions along these lines.

The clay brick is one of the oldest forms of building material and one would think that it must have long since reached its highest possible efficiency. It was used over 6,000 years ago in Mesopotania, in the then fertile valleys of the Tigris and Euphrates, where an architecture of brickwork developed, based on the use of these small pieces of material. Thus, while in Egypt, and centuries later in Greece, roofs were supported by huge stone beams or lintels, the Ninevites were acquainted with the uses of the arch. These ancient builders, however, did not get very far, from an engineering point of view, for they apparently knew little of how to proportion a building for strength. Examples have been found of walls of great thickness for comparatively small buildings—one hall thirty-two feet wide, having walls twenty-six feet thick. It was the Romans who did more in the development of brickwork than any other people. They not only built their palaces, theatres and temples of it, but also their wonderful aqueducts and viaducts.

But common brickwork, as used to-day, when required to carry great loads, must be classed as a very inefficient material. Good, well-burned brick, has an average ultimate compressive strength of about one hundred and thirty tons per square foot, but when it is laid in lime mortar in the usual way, the average strength of the combination is not more than half of this. (70 tons). Here is a waste of fifty per cent, of the strength of the brick. It is only by the use of cement mortar that the value of the brick can be developed, for the strength of a wall depends on the strength of the mortar. Now, for any homogeneous material, such as steel, it is usually considered quite safe to allow a working stress up to one-fifth or one-fourth of its ultimate strength, but for brickwork conservative engineering practice does not permit more than one-tenth or one-twelfth, (7/8 tons). Thus to carry a given load we have to use two or three times as much brickwork as we would if we could have the same confidence in it that we have in steel. This is a further waste of the strength of the brick.

But there are still other handicaps put upon the use of brickwork which are not necessary. In some cities, the building by-laws will not allow even the conservative unit stresses given above, but fix the limit as low as four tons per square foot—about what is considered safe for solid earth. This means that in these cities, to carry a given load, the amount of brickwork must again be doubted.

SYSTEMATIC LAYING OF BRICK

Now, approximately half the cost of brickwork is for the labor required to lay it. In this country we expect to pay masons at a somewhat higher rate, in proportion to that received by some other trades, because of the fact that there are four months in the year during which there is not much bricklaying done. In other words, we only use seventy-five per cent. of the available skilled labor of this trade. We are safe in saying, therefore, without casting any reflection on brick masons, that from an economic point of view bricklaying is not more than eighty per cent. efficient in Canada.

Something that requires more serious consideration is the claim made by Frank B. Gilbreth of New York, that by the elimination of waste motions and the adoption of systematic methods, the average mason can double his rate of laying brick.

Thus for every dollar we spend for brickwork, fifty cents is for materials and fifty cents for labor. For this latter half-dollar we obtain labor of which we only use forty cents worth and which it is possible to reduce to a cost of twenty cents. We are, therefore, getting seventy cents worth of brickwork for one dollar. But, as in some cities, we are required to use twice as much brick work as we need for strength, in such cities we only get thirty-five cents worth of strength for one dollar. The same by-laws will allow us to put about four times the load on plain concrete that is permitted on brickwork and the cost of concrete in piers and walls is approximately the same as brickwork. So for one dollar invested in concrete we will get about twelve times as much strength as we would from the same spent for brickwork; assuming that we get one hundred per cent. efficiency in the placing of the concrete.

These figures must not be taken too seriously, for they in no way express the true relative value of brick and concrete. They are given to emphasize the fact that there is room for improvement in the use of even the oldest of clay products, and that in order to successfully compete with other materials, the highest standard of product and efficiency in workmanship are essential. They also illustrate the evil effects of unreasonable building laws, but this will be referred to below.

WATER ABSORPTION QUALITIES

One of the properties of burned (unglazed) clay is its ability to absorb moisture. This is a very useful property under some circumstances, but a very undesirable one for

brick, the common variety of which will absorb as much as seventeen per cent. of its weight of water. Certain impurities in brick when acted on by water causes them to crumble. Water expands eight and a half per cent. with a force of about two hundred pounds per square inch, at the temperature of 32° F., a temperature which we have on an average of sixty days a year in lower Ontario. It takes a pretty good brick to resist the action of water and frost for any length of time. Then too, lime mortar, unlike Portland cement, will not harden if kept moist, but loses its "life" and crumbles. For this reason many precautions have to be taken to protect brickwork from moisture or from contact with anything else which absorbs moisture, such as stone and concrete. It is well known that in this action which shows itself in the white effervescence, stain and disintegration that disfigure and injure so many buildings in which care has not been taken to interpose a layer of waterproofing between the brick and foundation, window sills, coping, and so forth. Partly on this account, and partly for architectural reasons, there has of late years been a growing demand for impervious brick. High class brick of this nature is being brought long distances, and fancy prices are being paid for it. There is also a noticeable extension in the use of glazed or vitrified material, all of which indicates a rising standard of construction.

In fireproof construction the principles of engineering are so greatly used that it is not more than necessary to mention the subject here. The desirability of this type of construction for large buildings, is admitted by all. But we have reached a point where fireproof construction can be used with splendid results for moderate size residences running from eight or ten thousand dollars in cost and up. In a well built house the extra cost is practically all in the floors and it is a comparatively small percentage of the total cost. While protection against fire is the point usually emphasized, there are many other reasons, sanitary and economic, in favor of this type of construction that in themselves are worth the extra cost. In fact, residences of this size built in the old way must now be considered second class, out of date, no matter how elaborate. How much more can this be said of schools and other large buildings.

In working toward this higher standard of building in which the construction features are entirely engineering, the engineer is closer to the manufacturer of clay products than the architect is. Those architects to whom the bulk of this class of residence work goes, make no claim of being engineers and it means a radical and expensive departure from their accustomed practice to undertake it. The owner on the other hand, knows even less about it, and, even if inclined to consider it, is easily discouraged by a hint at a great increase in cost. This is a field for fireproofing materials that has hardly been touched as yet.

FIRE LOSS PROBABLY DUE TO BAD CONSTRUCTION

A great deal of effort has been put forth to awaken our people to the fact that our tremendous annual fire loss is for the most part unnecessary. Not only are there direct losses when a fire takes place, but the very fact that a fire trap exists depreciates all the property near it and adds a burden of insurance. But as yet, apart from the various and in many cases inadequate city by-laws, little if anything has been done toward a systematic campaign against this destructive element.

Great as our fire losses are, the writer would not be surprised if on investigation it should be found that the loss from poor building construction, not including that due to lack of fireproofing, is even greater. Take the losses due to the action of water alone, not considering that from freshets and failure of dams. Water being an almost universal solvent constitutes the best of mediums for chemical action. Its presence is also required for all the kinds of bacterial growth which attack organic substances. It is a fairly good conductor of electricity and is necessary for the phenomena of electrolysis. Buildings erected in the dry deserts stand unchanged after four thousand years, while in our climate they would practically disappear in one-tenth of the time. So in addition to the waste from the mechanical action of water, such as the back flooding of poorly designed sewers, the undermining of foundations the heaving effects of frost, the damage to property from leaking roofs, and so forth, we have the disintegration of brickwork, as mentioned above, the rusting of metals wherever exposed or subjected to electrolytic action, and probably the most important of all, the decay of untreated and unprotected timber.

In the form of snow and ice, water does an immense amount of damage, but as a great deal of this is unavoidable, it cannot all be charged to poor construction.

WASTE DUE TO CITY BY-LAWS

Another cause of waste is that referred to above—the unscientific and sometimes absurd requirements of the building by-laws of many cities. Conditions imposed in some cases are made so arduous as to be prohibitive and actually put a premium on the poorer type of construction. It was estimated (by C. R. Young. Can. Eng. Feb 26, 1914) that the 1913 building by-laws of Toronto, entailed an average annual waste of a quarter of a million dollars by unreasonable structural requirements. Any legislation that requires an extravagant use of any article or material so adds to the cost of a building—often in a greater proportion than the cost of material itself—that instead of increasing the demand for it, it actually has a tendency to restrict its use and favor its competitor.

But the waste of wealth thruout the country due to faulty construction must be enormous. Every high wind or heavy snow storm levies its toll of damages. How much of this is unnecessary, it is impossible to say. Every thunderstorm leaves a path of destruction behind it, and yet it has been demonstrated of late years that danger from lightning can all but be eliminated by the intelligent use of lightning rods.

There are smaller and indirect items of waste, such as is due to the poorly constructed small house where a few extra dollars spent in making it weather tight would be paid for many times over in the saving of fuel to heat it. Thus the subject gradually shades off into other economical problems which have it to do with the sanitary, commercial and industrial welfare of the nation.

In the light of present day knowledge a large part of all this loss from fire, water, and waste, is unnecessary, if not criminal. It remains for ways and means to be devised that will restrain the careless, protect the ignorant and to supplement, and encourage the efforts of individuals to reach a higher standard of construction. What the Municipal and Railway Board is doing for our municipalities what the Provincial Board of Health is doing for sanitation and public health, what the Hydro-Electric Commission is doing for good electrical installation, what we expect the Town Planning Act will do for our cities, that we need for building construction.

And the honest and efficient manufacturer of clay products may rest assured that the broader application of the principles of engineering to construction will mean an ever increasing appeciation of all his lines that enter into construction work.

* * *

The Far West Clay Company of Tacoma, Wash., has shipped a large consignment of fire brick and interlocking building tile to Hillsboro, Ore., to be used in the construction of a modern condensery for the Carnation Milk Company. This, according to H. S. Wheeler, will be the thirteenth plant built by the Carnation Milk Company of brick and tile, practically all of which has been supplied by his company.

LITTLE PROBLEMS *in* ACCOUNTING

Small, But Important, a Proper Working Out of the Questions Outlined Below Often Makes the Difference Between Success and Failure

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company, Uniontown, Pa.

A COMPANY buys clay lands for $10,000 and uses one tenth of the deposit each year. How much should it set aside annually as a sinking fund so as to have the original investment returned intact at the end of ten years, the sinking fund drawing four per cent. interest, payable annually?

Such a question arose during a recent meeting of brick manufacturers who were discussing the proper manner of charging off depletion of clay deposits.

HOW IT WORKS OUT

One method suggested was to charge off each year one tenth of the total investment. This requires the clay properties to bear a part of some other operating charge, and to assume a burden which does not belong to them, while some other department reaps an undeserved benefit.

It will be found that by setting aside an annual sinking fund of $832.92 drawing four per cent. interest, payable annually, the total amounts on deposit at the end of each year will be as follows:

First year	$ 832.92
Second year	1699.16
Third year	2600.04
Fourth year	3536.98
Fifth year	4511.34
Sixth year	5524.71
Seventh year	6578.62
Eight year	7674.69
Ninth year	8814.59
Tenth year	10000.10

Thus, at the end of ten years, the manufacturer will receive back his original investment of $10,000.00 in cash, ready to buy additional clay deposits.

This same question comes up in the case of coal companies, which must set aside a sinking fund so as to return the original capital stock invested by the time the coal deposit is exhausted, otherwise they will be paying dividends out of their capital stock.

The problem is also related to the subject of annuities and to the amortization of bonds which occur in banking.

AND THEY SAY, "FIGURES DON'T LIE"

Here is another question which came up at the same meeting:

If the cost of raw material is $4 per thousand for a certain class of brick, the molding and drying cost $3 per thousand, the burning cost $2 per thousand, and the cost of stocking and loading 50 cents each per thousand, is the total cost of these operations $10 per thousand? Would $15 per thousand be a satisfactory selling price? These figures are, of course, all fictitious.

The writer knows of an instance where the cost of each operation, taken separately, was satisfactorily low, and business could be secured at apparently profitable prices, so the sales department went after the business—and got it.

Like the boy who chased the hornet, the company in this case got stung. For it so happened that the loss due to spoiled and broken pieces was excessive and was under-estimated. As soon as this was discovered, sales were called off, the orders already booked were filled, but no more orders for this product have since been solicited or accepted.

Let us take the above random figures, and suppose 1,000 pieces are molded, 800 of them set, 650 put into stock, and 550 finally shipped. We thus get the following figures:

WHAT THE COST REALLY WAS

Raw material for 1,000 pieces	$ 4.00
Molding and drying 1,000 pieces	3.00
Setting and burning 800 pieces	1.60
Stocking 650 pieces	.33
Loading 550 pieces	.27
Total cost of 550 pieces	$ 9.20
Credit 450 pieces lost at raw material cost	1.80
Net cost of 550 pieces	$ 7.40
Cost per thousand	13.46

Under these conditions it will be seen that a selling price of $15 per thousand loses its attractions. In the case already referred to, by including the overhead charges on the basis of the quantity molded, the actual cost was considerably in excess of the selling price.

A few months ago the writer was standing with the superintendent of a large plant, beside a pile of broken shapes amounting probably to more than a large car load. The superintendent stated that they counted upon a loss of 50 per cent. in burning, but that it sometimes ran as high as 95 per cent. The shapes in this particular case were quite difficult and the specifications exacting.

* * *

Author Will Build Maine Cottage of Brick

John Kendrick Bangs, a well known writer, while on a recent visit to Columbus, Ohio, was shown over the artistic brick exhibit of the Claycraft Brick Company of that city, with the result that, after viewing the display for some time, Mr. Bangs said:

"This is the first time that I have ever seen brick artistically and beautifully arranged. It is one of the best things that I have ever had the pleasure of examining. I have been thinking of erecting a dwelling in the woods of Maine and had practically decided to build it of timber. Now I have changed my mind and will build it of brick as I believe that I can get a more beautiful dwelling by using that material."

TABLE No. 29—PRODUCTION-EMPTYING

JANUARY 1916

Line No.	Date	Post From		Original Contents						Emptied from Kiln Daily							
										Class A				Class B			Class C
			Column No.	Tons I	Class A II	Class B III	Class C IV	Class D V	Class E VI	Kiln No.	Good VII	Seconds VIII	Broken IX	Good X	Seconds XI	Broken XII	Etc.
1	1	Reports	Emptied Daily														
2	2																
3	3																
4																	
			One line for each day in month														
28	28	Daily															
29	29																
30	30																
31	31																
32			Totals														
33			Each Grade of Culls Represents These Proportions of Loss in Value														
34			Equivalent of Loss in Each Grade in Terms of Good Ware														
35			Total Equivalent Loss for Each Class														
36			Total Amount Original Contents Divided Into Total Equivalent Loss Equals Percentage of Loss in Each Class Post Line No. 36 to T16-22														
37			Total Original Contents of Kilns—Each Class														
38			Tons Per 1000 Each Class														
39			Tons Original Contents Each Class														
40			Total Tons Original Contents All Classes														
			Post Line No. 40 to T8-5														

Duplicate for the other classes of product. Then duplicate the entire set of columns for January for each of the other months.

COST ACCOUNTING *for the* CLAY PLANT

With This Installment, the Tables of the Cost System, Together With the Explanation Thereof, Which Have Been Appearing from Issue to Issue, Are Complete

By A. J. Huac

BRINGING TO A CLOSE, in this installment, the uniform system of cost accounting which it has been presenting to its readers since August, 1916, "Brick and Clay Record" feels that it has, to use a somewhat hackneyed but nevertheless expressive phrase, supplied a long-felt want in the clayworking industry. It has given to the men manufacturing burned clay products, free of charge, a system for determining the cost of manufacturing any or all of the various products, which is simple to understand and easy to apply.

As the system has gradually developed certain faults of omission or commission have been revealed but, in the

TABLE No. 30—PRODUCTION—LOADING FROM YARD **JANUARY**

Line No.	Date	Post From		Class A				Class B			
			Column No.	I Loaded Good Grade	II Seconds	III Broken	IV Total from Yard Pile	V	VI	VII	VIII
1	1		Loaded Daily					Duplicate for other four classes in January. Also duplicate for remaining months.			
2	2										
3	3										
4											
			One line for each day in month								
25	25	Daily Reports									
26	26										
27	27										
28	28										
29	29										
30	30										
31	31										
32			Totals								
33			Each Grade of Culls Represents These Proportions of Loss in Value								
34			Equivalent of Loss in Each Grade in Terms of Good Ware								
35			Total Equivalent Loss for Each Class								
36			Total Amount Handled Each Class Divided Into Total Equivalent Loss, Equals Percentage of Loss in Each Class. Post Line No. 36 to T16-29								
			Tons per 1000 Each Class								
37			Tons Each Class								
38			Total Tons All Classes								
39			Post Line No. 39 to T9-5								

TABLE No. 31—PRODUCTION—STRIPPING

Line No.	Date	Post From		January	February	March, April and (8 more months)
1	1	Reports	Stripping Daily			
2	2					
3	3					
4	4					
5	5					
6	6					
7	7					
8	8					
9	9					
10	10					
11						
			One line for each day in month			
28	28	Daily				
29	29					
30	30					
31	31					
32			Total in Yards			
			Post Line No. 32 to T11-7			
33			Depth of Stripping in Feet			
34			Depth of Clay in Feet			
35			Tons of Clay Uncovered by One Yard of Stripping			
36			Clay Uncovered, Tons			
			Post Line No. 36 to T11-10			

main, it has sueeeeded in its mission, namely, to stir up the interest of the clay products manufacturers in this vitally important subject and enable them to reeord their manufaeturing eosts in a manner that will permit them to intelligibly eompare figures with fellow manufacturers. And, when it is taken into consideration that it comprises the first work of its kind, the first system planned for all branches of the industry, for the small plant as well as the large plant, it is only to be expected that there may exist a few imperfections.

However, we feel certain that many of our subscribers have profited by the attention they have given to the system, even tho they have not actually employed it in determining their costs. It was endeavored thruout to make simplieity the dominant eharacteristic—to make the system as simple as one designed to cover all branches of the industry, and in all types of plants, could possibly have been.

In this, the concluding instalment of an invaluable and complete series of articles on aecounting, we want partieularly to urge our readers who have followed the system to allow us to answer any questions that may have arisen in their minds, regarding its application, and assist in promoting a elear understanding of its principles. The following are the last tables on produetion, and conclude the system.

PRODUCTION—EMPTYING

We have supposed that the average plant turns out two grades of culls, those than ean be sold at a reduced price and those that are almost worthless. In case of firebrick plants and in some other cases, even the broken ware can be used. This table ean be used by posting, every day, what was taken out of the kilns, or an easier way would be to post when the kiln was finished. This will obviate many additions. Of eourse, any kiln which is only partially emptied at the end of the month must have posted what has been taken out up to that date. We have provided columns showing original contents so that we can see that the output of "Good," "Seconds" and "Broken" equals or approximates the original eontents.

On line No. 33 we figure the proportionate loss in value of the different grades. Suppose that Class "A" represents face brick which sell for $12.00 at the plant. Suppose that the seconds sell for $8.00 for building purposes, and the broken brick bring nothing at all. Line No. 33 would, therefore, have 33⅓ per cent. in column VIII and 100 per eent. in eolumn IX. Suppose that the seconds for the month amounted to 6,000 and the broken brick to 500. Line No. 34 would have 2,000 in eolumn VIII and 500 in eolumn IX. Line No. 35 would, therefore, be 2,500. Suppose that the kilns which were emptied contained originally 500,000. Line No. 36 would then show an equivalent loss of one-half of one per cent.

Lines Nos. 37 to 40 are used entirely to arrive at a tonnage of emptying production and are easily understood.

In using total original contents on lines No. 36 and No. 37, some care must be exercised if a kiln is only partially empty. Suppose that kiln No. 6 originally contained 25,000 brick, and that 12,000 good brick had been taken out in January. In figuring total original contents of kiln No. 6, plaee 12,000 in January and 13,000 in February. Of course this method is not to be used on any other table. This will make all the seconds and broken ware show up on the February report, but if we try to divide the seeonds and broken ware between the two months, we will add complications to our system with no benefit of any importance.

TABLE NO. 32 PRODUCTION—SELLING

JANUARY 1916

Line No.	Date	Post From	Column No.	Class A Good Ware Quan. I	Class A Good Ware Value II	Class A Seconds Quan. III	Class A Seconds Value IV	Class A Broken Quan. V	Class A Broken Value VI	Class B Good Ware Quan. VII	Class B Good Ware Value VIII	Class B Seconds IX	Class B Seconds Value X	Class B Broken Quan. XI	Class B Broken Value XII	Duplicate for three more classes	Total Sales Each Day	Total This Month to Date	Total Same Month Last Year to Date
1	1	Reports																	
2	2																		
3	3																		
4																			
			One line for each day of the month																
28	28	Daily																	
29	29																		
30	30																		
31	31																		
32			Totals																
			Post Line No. 32	T16-38						T16-38									
33	Line No. 33		Total Sales Each Class																
34	I÷II		Average Gross Sales Price Per 1000 Each Class																
	VII÷VIII		Good Ware Only																
	etc., etc.		Post Line No. 34 to T16-32																
35			Total Sales All Classes and Grades for Month																
			Post Line No. 35 to T14-1																
36			Total Sales Each Class Seconds and Broken																
			Post Line No. 36 to T16-40																

Duplicate for Other Months

PRODUCTION—LOADING

There is little to explain in this table. In column I we have listed the total ware loaded. In columns II and III we have listed the amount of seconds and broken ware that were found when loading the good ware. Column IV is a total of the first three and shows the total amount of ware taken from stock. An inventory of the ware in stock on the yard should be kept, to which is added the ware taken from the kilns and put on the yard, and from which the totals in column IV are deducted.

The percentage of equivalent loss as shown in line No. 33 is arrived at the same as in table No. 29 at line No. 36. The loss is based on the total amount taken from stock, as shown in column IV. In lines Nos. 37, 38 and 39 we arrive at the total tonnage handled, as that is the basis of cost in this system.

PRODUCTION—STRIPPING

This table requires only one column for each month. In that column we place the number of cubic yards of material removed. At line No. 36 we arrive at the tonnage of clay uncovered during the month. Ordinarily a cubic yard of loose earth or stripping, after it has been moved, will weigh about a ton. A cubic yard of earth or clay in place or before it has been moved, will weigh about one and a quarter tons.

Suppose we have a scraper that holds a cubic yard of loose earth when loaded, that the stripping is four feet thick and the clay bed ten feet. Every scraper load, therefore, would uncover two and a half tons of clay. This is posted on line No. 36.

PRODUCTION—SELLING

In this table we must take into account the total sales which include good, bad and indifferent ware. In some cases the sales of seconds will amount to quite a proportion of the total. Sewer pipe, paving brick and drain tile plants will use this feature most. The column for broken ware will not apply to many cases. Fire brick plants will use this most. In their case the broken brick should be sold to the manufacturing part of the plant for the same price as would have to be paid for other broken brick or bats.

At the extreme right we have three columns. The first shows total sales each day, and of course, is the total of the amounts in the several grades and classes. The second column shows the monthly sales to date, and the third last year's monthly sales to date for this month. This is done to keep a record from day to day of the monthly sales to date, so that a daily comparison can be made to find out if this month's business is larger or smaller than it was last year. Two more columns can be added if desired showing this year's business to date, and last year's to date.

Wheels Turn at New Far West Clay Plant

The new plant of the Moscow (Idaho) Fire Brick and Clay Products Company is now in full operation, according to a letter received from the concern, manufacturing 30,000 brick a day. The factory, which employs a force of thirty men, is electrically operated thruout and designed along modern lines, with an especial regard for economy and capacity of manufacture. The clay used by this company is dug from its deposits located at Joel, Idaho, a distance of five miles from the plant, which are opened by a shaft sunk to a depth of sixty feet. The occurrence of fire clay, which has been proclaimed by experts to be of a very high grade, and buff, white, and red burning clays, which, when mixed, are capable of producing a very pleasing range of colors, has been disclosed by tests at the company's pit.

After passing thru the cutting machine, the brick are dried in a steam dryer which has a capacity of 120,000, and which is heated by live steam thru coils from an eighty horsepower boiler.

It is the hope of the company to double the capacity of the plant by spring and, in order to do this, it is now building two round down-draft kilns from the brick which have already been burned in temporary up-draft kilns, and will shortly construct two more kilns of the down-draft type. According to the present plans, the manufacture of drain tile, silo tile and other burned clay products which can be used on the farm, will be undertaken, since the prosperous condition of the western farmer is furnishing a rich and virgin field for the manufacturer of clay products.

The Northern Pacific Railroad has laid a two-mile track to the company's kilns. Storage sheds, which will enable the plant to operate thruout the year, are to be built as soon as possible. According to present indications, the "Moscow Gem" products of the Moscow Fire Brick and Clay Products



New Plant of the Moscow (Idaho) Fire Brick and Clay Products Company

Company will enjoy a very heavy demand when placed upon the market.

Disclaims Alabama Connection

Altho emanating from a seemingly authentic source, an erroneous news item was published in the February 27, 1917, issue of "Brick and Clay Record," reporting that a recent increase in capital stock of the Kentucky Fire Brick Company, which operates a plant at Haldeman, Ky., was in connection with its taking over of an old fire brick plant at Fort Payne, Ala. Information since received from the Kentucky Fire Brick Company states that that company is in no way connected or associated with the enterprise at Fort Payne, Ala., but that the increase recently made in its capital stock was due to the fact that it is now erecting a large fire brick plant at Haldeman, which will have a daily capacity of 60,000 brick and which is located but a quarter of a mile from its present factory. Building operations were started on the new plant January 4 and the company hopes to have it completed and in operation by August.

Y. M. C. A. Starts Course for Bricklayers

The educational department of the Y. M. C. A. at Grand Rapids, Mich., has recently instituted a course in architectural drawing, with plan reading and estimating, for the benefit of the bricklayers in that city. The course will be given under the auspices of the Bricklayers' Union No. 1, in co-operation with the Grand Rapids Builders' and Traders' Exchange, and will continue until June 16.

MARKETING *the* PRODUCT

Helpful Articles and Timely Suggestions for the Dealer and the Manufacturer's Sales Force

CLAY CLUB IN SMOKY CITY DISTRICT HELPS SOLVE SELLING PROBLEMS

WHEN all has been said and done, concerning association work, it is really the small group of clay products manufacturers or dealers that accomplishes the most in their market. Organizations of a national character are necessary for the proper growth and progress of each branch of the clayworking industry. Their national oversight "irons out" a great many "wrinkles" and solves a great many problems which distress the body of manufacturers as a whole, but large bodies move slowly and when you come to the last analysis, those manufacturers who are operating in a definite district can get farther in less time with bigger results than can the larger body, proportionately speaking.

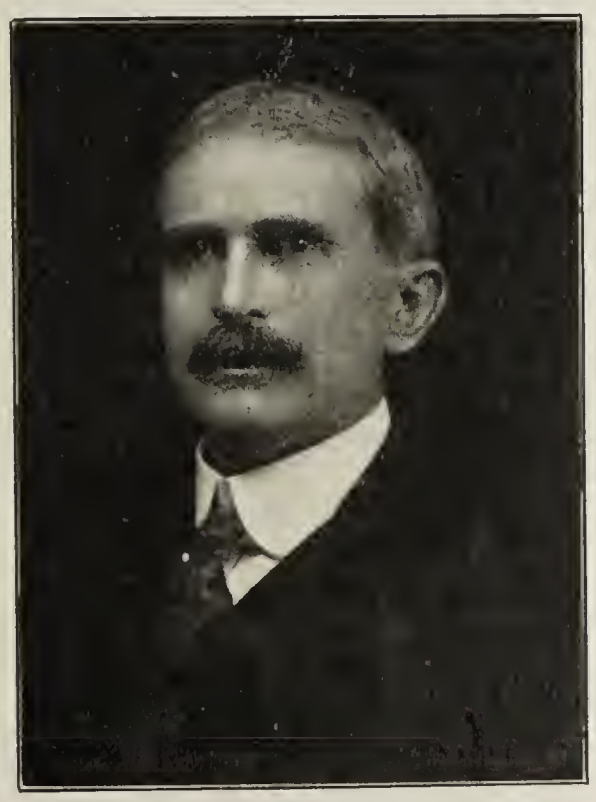
The clayworking industry has been blessed with a few live local organizations. The Chicago Face Brick Association, the Cincinnati Brick Club and other similar bodies, to say nothing of the divisional organizations of some of the larger associations, are splendid examples of what clayworkers in one city or district can do when they get together for a co-operative effort.

THE PENNSYLVANIA CLAY CLUB

One of these local organizations concerning which little has been said in the past but which, nevertheless, has been very busy accomplishing some tangible results for its members, is the Pennsylvania Clay Club. This club, composed of about thirty brick manufacturers in and about the Pittsburgh district, was organized about three years ago with a view toward bettering the conditions of its members and talking over matters of vital importance to them. This club meets once a month, at which time it has a dinner, and after this pleasant affair, for a period of about two hours discusses the brick business in general.

At the last annual meeting of the organization the following officers were elected to serve during the ensuing year: T. E. Wilson, president; A. Q. Starr, secretary; Andrew Lanz, treasurer; H. D. Simpson, corresponding secretary.

Like the Chicago Face Brick Association and the Cincinnati Brick Club, the Pennsylvania Clay Club devotes a good part of its energy to improving marketing conditions. Along this line, a number of things have been accomplished, since the organization of the club, one of the most important of these being the standardizing of the size of brick, all manufacturers now making them 8¼x2½x4 in. This, in itself, meant a great deal to the manufacturers, as prior to this organization, there were many different sized brick in the Pittsburgh district, some being as large as 9x2½x4½ in. This, of course, worked a great hardship upon the clayworkers in that district, as it not only took more material but considerable extra freight to place the product on the job. In addition to this objection, the large sized brick reduced the demand, and the selling price for this size was not any greater than that for a brick which the members of this club are manufacturing today.



T. E. WILSON
President, Pennsylvania Clay Club



H. B. SIMPSON
Corresponding Secretary, Pennsylvania Clay Club

GAVE ONE HUNDRED DOLLARS TO BUILDING SHOW

Realizing, that the life of such an organization depends largely upon the treasury, this club has been fortunate in laying aside quite a healthy sum which is used at various times to further the interests of its members. At the last meeting it was decided to forward $100 to the National Complete Building Exposition, to be held in New York, for the purpose of defraying a part of the expense in connection with the clay products exhibit there. This was one of the largest gifts made to the fund raised by Robert C. Mitchell of the Barkwill-Farr Company for the purpose in question.

The membership fee of the club is very small, being only $24 per annum, which includes one dinner each month, and there are no other expenses connected with the organization, but as stated above, from this amount the club has been able to lay aside quite a neat sum.

The members of this organization feel that if there were more clubs of similar character formed thruout the country, there would be a considerably better feeling existing among the manufacturers in the clay products industry, and, incidentally, better prices.

The corresponding secretary of this organization, H. B. Simpson, of the Monongahela (Pa.) Clay Manufacturing Company has very generously offered to supply further information to anyone who is interested in the Pennsylvania Clay Club. He furthermore states that it will be a pleasure for the club to assist inquirers in any way possible in organizing such a club as is found in the Pittsburgh district.

Last, but far from being least important of the features of this club, is that its membership embraces all of the common brick manufacturers within a radius of sixty miles of Pittsburgh.

SPICY SUGGESTIONS *for the* SALESMANAGER

Now for New Panels

While the ideal system in the show room of the face brick dealer is to install new panels just as rapidly as new offerings are put out by the manufacturers whom he represents, it is seldom that this is actually done. The expense of making the change is considerable, and there is always a tendency to let well enough alone, if the panels already installed are good looking and the brick displayed consists of good sellers, which are popular with architects and owners in that market.

But the arrival of spring means that the building bee will be buzzing again, and that new interest is to be taken in building materials. It is always a good thing to have something new to talk about, something on which an appeal to those about to build may be based. That is one reason why the clothing merchants announce spring openings, and why the automobile people begin to advertise new models; they want to give prospective purchasers a legitimate excuse for spending their money. The brick man should be just as liberal with his customers!

Seriously, it is certainly true that changes and improvements of all kinds, adding a touch of novelty to a showing of materials, are worth while. They assist greatly in sales promotion work, and, if the dealer is doing any advertising, give him something new to talk about. Besides, this is the psychological moment to bring a brick display up-to-date—now when the addition of new things is most likely to attract an interested and appreciative audience.

Look over your show room and see if your panels represent the latest and best in your line. If they don't, make the modest expenditure needed to include your new numbers—and then put on the loud pedal in inviting customers to come in and see what you have to offer.

Looked at purely from the merchandising standpoint, the stunt is good business.

* * *

The Telephone "Smile"

"You must put more 'smile' into your voice when you are talking over the telephone," said a successful face brick man, who was giving his assistant, a youngster just out of college, a few lessons on the psychology of selling. "The other fellow can't see you; he doesn't get the influence of your personality, and if you speak gruffly he concludes that you have a grouch on. That isn't going to help you to sell brick, is it?"

This little preachment was the result of an unintended "run-in" the assistant had had with a prominent architect who had telephoned the office to make an inquiry about a certain number the dealer had shown him. The salesman had answered the phone, and being unfamiliar with the matter, his brusque, "Say that over again," to Mr. Architect had irritated the latter considerably. So he had told the brick man later on that he did not like the way his office assistants handled his inquiries.

"There is such a thing as telephone personality," continued the dealer to his aid, "and it is an entirely different thing from one's personality as we ordinarily know it. In fact, many very plain people have built up exceedingly attractive telephone personalities for themselves, and have made friends by the telephone when they might have had a harder time face to face. You have been doing the opposite. You might overcome a man's prejudice if you met him personally, but your tone over the phone, is likely to make him think that you are looking for a fight instead of business."

The assistant promised to make an effort to put more "smile" into his voice, thereafter, and seems to be making good in that direction.

Speaking of the telephone recalls the fact that a lot of good advertising is being built around telephone numbers. The taxicab companies, practically all of whose business comes by phone, are in the habit of featuring this point in their advertising, and other business concerns which deal with the public by telephone are using the same plan.

A building material dealer out in Missouri has the telephone number, 300 Green, "Green" being the name of his county. In order to emphasize his use of the idea, this dealer always wears a green tie, green shirt, green socks, and so forth, and a green band around his hat. He uses an electric sign with nothing on it but "300 Green," and all of his wagons carry the legend, "Call 300 Green for building material." This is a comparatively small community, and the whole town is interested in the various ways by means of which the material man is promoting this feature, and in a way takes a good deal of pride in the originality with which he is getting it across. The brick man who wants to do something out of the ordinary might make a start with his phone number, and give it prominence with architects, contractors and owners by proper publicity.

* * *

Brick in the "Movies" Again

It was recently reported in this department that an educational film showing the manufacture of pottery was being shown in many moving picture theaters. A second film on the same general subject, this one, however, dealing with the manufacture of brick, is now being distributed, the Paramount people being responsible for the offering. It is shown as part of its weekly "Paramount Pictographs," and the brick feature is billed as "The Clayworkers." This service is handled thru the principal

film exchanges in all of the large cities, and brick manufacturers should suggest to their local exhibitors that they make a point of showing the picture. There is no advertising matter connected with it, and it was filmed because of its interesting industrial features, the Paramount weekly being designed along strictly educational lines. Because of its non-commercial atmosphere the effect of the picture is decidedly pleasing, and while there is nothing in it to boost brick directly, along competitive lines, the showing of the processes used in its manufacture is certain to make prospective builders think of this material when they come to the point of specifying.

The pottery-making film showed the ancient methods of pottery making, as well as those of today, while "The Clay Workers" is devoted entirely to operations in the modern brick plant. The mixing of the clay, molding, drying, burning, and other operations are all shown, and the extent of the equipment used is of exceptional interest to the casual observer, who probably has never been inside a brick manufacturing plant.

Movie publicity is "good stuff" for the clay products business, and it is a good thing to make the most of it by seeing that films of this kind are given wide circulation.

Sales Work and Credits

While a good many salesman fret at the idea of having to look after credits or collections, and want to leave this to "the office" to attend to, it is impossible to divorce the two, for the reason that no business is good business, no matter how attractive it may look on paper, unless financial conditions are right.

This is particularly important in the sale of brick and other clay products, for the reason that repossession is impossible; once the ware has gone into a building, it has passed forever from the hands of the manufacturer. Settlement must be assured in advance of delivery.

The lien laws are, of course, intended to protect the material man by giving him first claim on the owner; but sometimes this protection is nullified by the contractor, who waives his lien rights at the time the contact is accepted. This involves the material man also.

This means, of course, that the salesman should investigate the business at the time he goes after it, so that he can notify the office of the conditions. Investigation might be made before deliveries were authorized, but it is best for all concerned to have the facts understood in advance. The brick man can then get a guarantee from the owner or other surety which will protect him, as the discovery of the waiver after the brick have been put into the job leaves him in a very awkward position with reference to collection.

The salesman, who is out in the field, has a good opportunity to get a line on the general financial standing of the people he is trying to get busines from, and he can co-operate effectively with his principal by advising regarding these facts as they develop.

Saying "I Told You So," Effectively

One of the principal advantages of brick is that it makes fireproof construction, and thereby enables the owner to secure a lower fire insurance rate. The saving in the premium is an immediate return on the investment, but it is the fire protection itself that the owner is really buying when he specifies clay products for his structure.

Many brick men emphasize this feature strongly in their sales arguments, but in most cases treat the fire hazard in prospect. Dealing with it in retrospect is possible only when actual experience shows how brick acts under the fire test. When this happens, the result is usually convincing enough to justify those interested in brick in saying "I told you so," tho they can afford to make a statement that is convincing without being ungracious.

A joint advertisement in the Louisville (Ky.) Herald, following the recent destruction by fire of most of the plant of the Kentucky Public Elevator Company, one of the largest grain-handling plants in the city, indicates what may be done along this line. The brick people got together and published an advertisement headed, "Build with Brick," without signatures of any kind. The lesson which the public was taught by the ad will, however, prove of value to the entire brick fraternity at that point, regardless of the lack of names in the ad.

Including the caption, the copy for the ad read:

"Build with brick, the everlasting material.

"Last Sunday's big fire gives convincing proof of the superiority of brick as a building material.

"The brick dry-house adjacent to the elevator, and directly in the path of the fire, stands today, undamaged in the midst of ruins.

"When you consider the saving in insurance, it costs no more to build with brick."

Planning Ahead

The man who is going to get the grapes in the active selling season, which will be opening in a short time, is planning his work right now.

Those who can give their opponents in the selling game "cards and spades," meaning advance preparation, and then take a majority of the tricks, are the exceptions. They must be unusually clever, and incidentally, have luck on their side as well. The man who wants to get his share of the business leaves nothing to chance, but looks just as far into the future as possible. He knows that the more data he has, the easier it is going to be to land the contracts.

Consequently, he is marshalling all of his prospects, going over every card in his file, and making sure that he is properly advised as to the status of every building job. If there are any features regarding the kind of material or the grade to be used that are lacking from his sales data, he goes out and gets this information—not because he can necessarily make immediate use of it, but so that when the time comes everything will be right at his finger tips. He knows that, like the lawyer who prepares his cases so thoroly in advance that he anticipates the moves of his adversaries, he is best prepared for competition by knowing all about the requirements of his customer.

Another feature which the man in charge of sales promotion can give attention to at this time of the year is getting his photographs of buildings in which his products have been used into suitable condition. Brick men usually accumulate a good many pictures, and these make good publicity matter. The only difficulty is that the photos are seldom properly classified—they lie around loose on top of desks, and so forth, and often become far from presentable, owing to this lack of care.

Instead of having photographs of this kind mounted, it is better to keep them unmounted, until they can be placed in a permanent book of some kind. This should be preferably a loose-leaf volume, so that any number of additions can be made. A well gotten up array of pictures, with the name of the architect, contractor and owner, the character of the brick used and the cost of the job indicated below every picture, is good sales material, and invariably interests those who have an opportunity to look at the photographs.

The SUPERINTENDENT

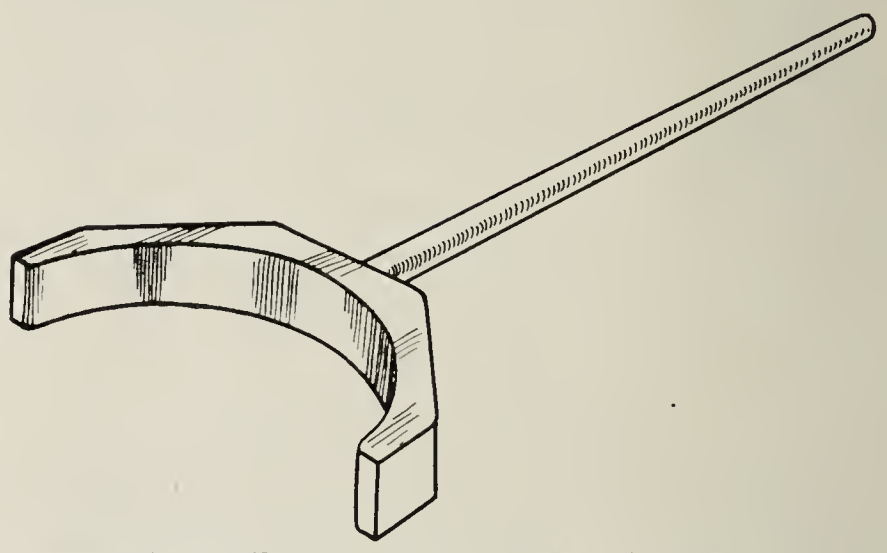
Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

Drying Tile Instead of Pallets

Eliminating the use of pallets and increasing the capacity of dryer cars about twenty per cent. were two of the accomplishments of the device pictured in the accompanying illustration, besides making possible a large increase in the daily output and overcoming local conditions that were, until solved, perplexing, to say the least.

The device is used in connection with the manufacture of large sizes of drain tile. On this particular plant, the large tile are taken from the off-bearing belt, placed upon pallets and transported over a roller table, running at right angles to the off-bearing belt, to the side of the dryer car tracks.

At this point, in place of lifting the tile on the pallets and placing them on the dryer car, a cylindrical form which fits loosely over the surface of the tile when in an open condition, but which, when tightened, clamps the tile firmly enough to allow it to be raised without



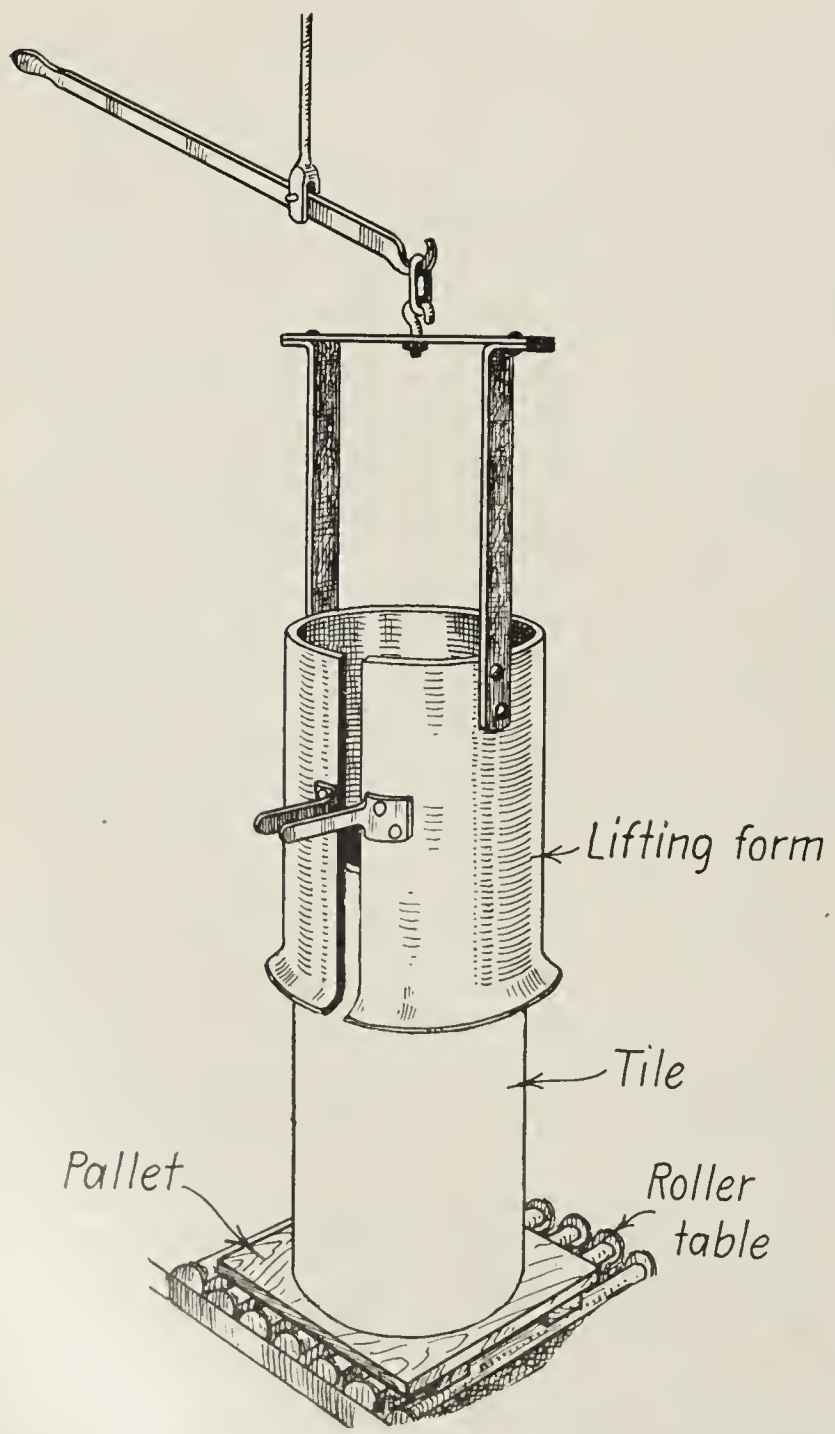
Device Whose Function It Is to Prevent Misshapen Ware in Connection with the Use of the Lifting Form

danger of its being damaged, is employed to transfer tile from the roller table to the cars. In this manner, not only is the capacity of dryer cars increased, but the number of pallets required is exceedingly small—about three or four are sufficient to take care of the entire output, inasmuch as they are taken from the roller table immediately after the tile is removed and placed under another tile coming from the off-bearing belt.

Of course, the most important part of this equipment is the cylindrical form, which carries the tile from the roller table to the dryer car. This form is suspended from a rope which passes over a pulley attached to the ceiling directly above the point of operation and another at some other convenient point, and is slightly overbalanced by a suitable counterweight attached to the other end, which assists the operator in lifting the tile. This counterweight, when at the highest point, is but a few inches above the floor, and makes it possible for the operator to release the form with the assurance that it will not require a step ladder or aeroplane to bring it back to its proper position.

Connecting the frame work of the form to the rope is a long iron rod, or handle, which operates on a fulcrum, that is to say, a distance of about six inches separates the point to which the rope is attached to the arm and the end of the arm which is fastened to the form. Consequently, when the form is let down over the tile and drawn together by means of the two handles shown, pressure exerted on the outward end of the arm will lift the tile from the roller table, It is a very simple matter then to swing the tile over to its proper position on the dryer car. It is essential, of course, that the diameter of the form be so nicely determined that when the handles shown are apart, it will fit loosely over the tile, but when the handles are pressed together, it will clamp the tile firmly.

It can be seen from the drawing that the lower end



Cylindrical Form Which All But Eliminates the Need for Pallets In Making Large Drain Tile

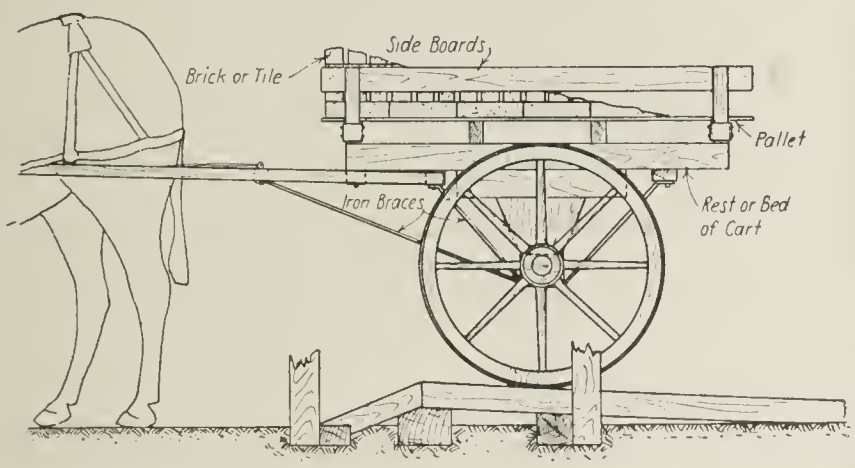
of the form is curled outward slightly, permitting it to be slipped over the tile with little danger of damaging the ware.

Another device employed in connection with this useful apparatus is that shown in the second drawing, which is used to prevent any bulging of the tile when placed on the dryer car by the form. The end of this device is so shaped that is encircles snugly about one-third of the exterior surface of the tile for a distance of about two inches above the dryer car floor. In swinging the tile from the roller table to the dryer car, it has been found that there is apt to be a slight bulging of the tile on the outward side, which if passed unnoticed, would cause considerable trouble in the dryer. This simple instrument presses the pipe back into shape and precludes the possibility of dryer loss due to that source. Of course, it is necessary to have a separate instrument for each size pipe.

Displacing Men With Transfer Cart

A very novel and economical device may be seen in use on a small Minnesota plant, transporting brick and tile from the drying shells to the kiln. It is a device such as cannot be found in the pages of a machinery catalog, but which has been perfected by much planning on the part of the superintendent, in an endeavor to secure a piece of equipment that would lower the high costs of transporting dried ware to the kilns via the wheel-barrow route.

And that it has cut those costs, there is no doubt. The reduction of the amount of labor necessary to perform that operation following the use of the cart, amounted to about fifty per cent. and the work was expedited to such

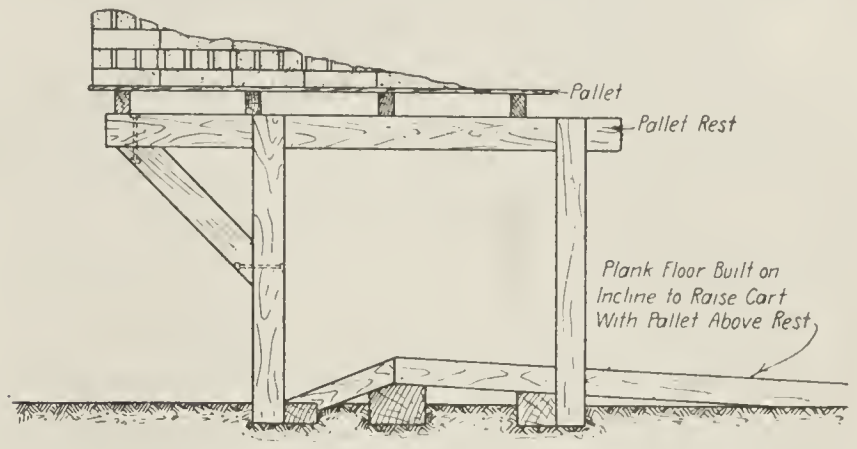


Horse-Drawn Transfer Cart Which Enables Two Men in the Drying Sheds and Two Men at the Kiln to Set Twenty Thousand Brick Daily

an extent that the kiln could be set in about half the time it had previously taken. All this was accomplished with a device, the drawings of which are shown in the accompanying illustrations, and which cost little more than $1.50 and a few hours' time to construct. Of course, material entering into the construction of the cart and the platform comprising the outfit, was for the most part picked up around the yard.

The rig, as it is termed by its "inventor," admirably serves the purpose of the raising and lowering car and does away with the track and turn tables that would be necessary were the standard equipment used. The operating power is partly opened to view in the second drawing. The cart itself is so constructed that the large pallet which it carries is easily removable but, nevertheless, steadily supported.

The pallet rest is probably the most important part of the device. This is located near the kiln and consists of two well braced uprights placed far enough apart to allow the cart to be driven between them. Between these two upright rests is constructed an inclined plank platform rising to the highest plank at a point between the legs of the uprights and then making a rapid descent.



Pallet Rest Which Receives the Ware on Pallets from the Transfer Car as It Passes Over the Hump on the Plank Floor Beneath

The pallet itself is of necessity wider than the distance between the two upright rests. When tile are placed on the cart, side boards are attached to the pallet to prevent the ware falling off.

In using this device, the cart is driven between the hacks or in the shed and the pallet loaded from both sides. From here it is driven to the rests where the inclined platform carries the pallet above the rests, but which leaves it suspended on the rest when the cart descends on the other side. An empty pallet is then placed upon the cart and another trip is made. It has been found advisable to use exceptionally wide wheels, to keep them from cutting up the ground.

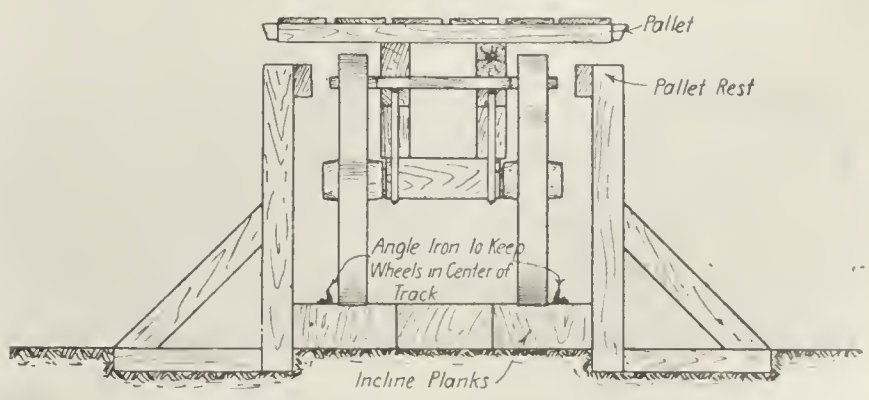
According to the experience of the plant at which this outfit is in use, two men in the kiln and two in the sheds will set about 20,000 brick, case up the kiln and put on the platting in ten hours.

Furnace Efficiency and Smokelessness

Dr. L. P. Breckenbridge, in a bulletin recently issued by the Engineering Experiment Station of the University of Illinois, shows that, altho smokelessness constitutes a fairly reliable indication that complete combustion has been attained, many other possible heat losses may be suffered unless a further investigation is made of furnace efficiency.

According to Dr. Breckenbridge, "Smokelessness is a relatively safe indication that the total heat has been liberated. Unfortunately, it gives no indication of the degree of efficiency with which the heat is being utilized. The problem from the standpoint of the operator demands smokelessness with a minimum air supply.

"The losses due to sensible heat in the stack gases, while seldom rising higher than thirty-two per cent. of the total heat, may be as low as ten to twelve per cent. without smoke or incomplete combustion."



Cross Section of Cart and Pallet Rest

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A Soft Mud Brick Machine
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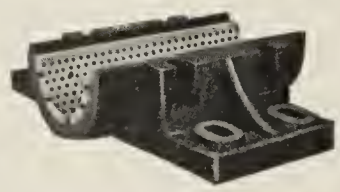
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QUESTIONS

A Two Cent Stamp May Bring You Advice That Will Stop a Waste, Improve Your Ware or Lower Your Production Cost

Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

Oil as a Fuel in Burning Sewer Pipe

812. *Ontario—We are desirous of obtaining some information as to the use of oil for burning salt glazed sewer pipe and we trust that you will be able to supply same, either from facts on your files or from some other subscriber to your valued magazine, who has practical knowledge of this fuel for the purpose named.*

Information on the following points would be greatly appreciated, as also any other facts of importance in the matter.

(1.) *Quantity of oil required for each burn.*

(2.) *Number of hours required for each burn.*

(3.) *Size of kilns referred to.*

(4.) *Method of application of salt for glazing.*

(5.) *Quantity of oil equivalent to one ton of good gas coal.*

(6.) *Approximate cost of equipping thirty-seven foot kiln having twelve fire holes.*

If you are able to supply part or all of the information asked for from facts at hand, we would be glad to hear from you at your earliest convenience.

We give below a tabulation showing results from a series of test burns on a number of sewer pipe kilns on the Pacific Coast. This tabulation answers the questions numbered 1, 2 and 3.

FIGURED FOR ROUND THIRTY-FOOT KILNS

Kiln No.	Tonnage Based on Setting Tonnage	Oil Used, Bbls.	Hours on Oil
5	42.81	57.64	28.5
4	45.71	58.71	27.5
7	41.41	55.49	27.0
4	38.29	54.24	26.5
5	34.76	54.74	25.0
6	43.22	59.09	26.0
7	42.15	55.60	25.0
8	46.21	57.71	30.0

Average amount of oil used per kiln.....56.65
Average tonnage per kiln.....41.82
Average number of hours on oil.....26.90

It has been found by the concern upon whose plant the above tests were made that excellent results are obtained from the use of cord wood in watersmoking. The watersmoking period is about sixty hours in duration and the average cost of cord wood per ton of ware at the time the test runs were made was $0.267.

In answer to question No. 4, wish to say that the method of application followed by the company above mentioned of salt in glazing is the same as tho coal were used, the salt being introduced into the fire boxes, one small shovelful in each box, and the operation repeated until the trial pieces snow that the glaze is satisfactory. Three or four applitions of salt are found to be necessary.



and ANSWERS

Best Authorities in Every Clay-working Branch are Called into Consultation — Their Advice is Free to You, Thru These Columns

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

Concerning question No. 5, the management of this same concern considers 3½ barrels of California fuel oil to be equal to about one ton of Washington semi-bituminous coal.

Answering question No. 5, we have very little first-hand information regarding the cost of equipping kilns with oil-burning equipment. The equipment used on the Coast plant in question is rather crude in that the burners are home-made affairs constructed from wrought iron pipe. The equipment is so arranged at this plant that either air or steam can be utilized for vaporizing the oil at the burner. The company that made the above tests states that it prefers air and uses it entirely, except when its compressor is in need of repairs, as it has been found that in the long lines from the boilers to the kilns, in using steam, there is considerable condensation trouble.

Joseph K. Moore at one time made an investigation of the oil burning equipment at one of the Coast sewer pipe factories and contributed a paper to the American Ceramic Society. This paper was published in Vol. XIV of the Transactions, on page 801 under the title "Oil as a Fuel in Burning Ceramic Wares." You may find information there which will be of value to you.

* * *

Wants Solution to Terra Cotta Problems

813.—*I am a chemist at one of the terra cotta factories here and would like to get, if possible, an answer to some if not all of the questions given below. I have read with great interest the questions which you have answered previously in your numbers, which the firm has been kind enough to let me read.*

(1.) *In using a water glaze (firing at cone 3) first burning, I notice the glaze rubs off when handling previous to placing in the kiln (i. e. after sprayed and before fired). Gum solution overcomes this but is costly. I have heard that water glass (sodium silicate) or starch will help. I do not wish to use more ball clay or change composition of glaze if it is possible to avoid doing so.*

(2.) *What is best to give a heavy glaze after firing in both water and gum glaze?*

(3.) *Do they use $MgCO_3$ or cryolite in glazes or slips and for what purpose?*

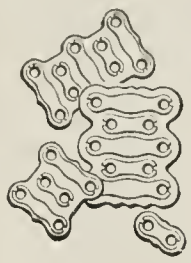
(4.) *Do you know of a vitrified white slip formula for first burning at cone 3 without use of frit or calcined materials? I have had good success with browns by use of spar, flint, ZnO, china clay and ball clay, mixed in certain proportions (also with Cornwall stone) but all these needed a brown clay containing iron oxide to vitrify them. Using $Na_2 Co_3$ and so forth, checked the surface of ware.*

(5.) *What is the best way to make a good straight sample after firing? Size about 4x2½x⅞ in. I desire the edges perfectly square all around (as some that I have seen from*

The joint should be as strong as the rest of the belt.

And it can be.

We'll tell you how—and why—if you'll ask us for Booklet 3.





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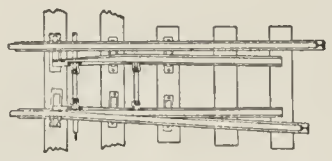
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Saginaw, Michigan



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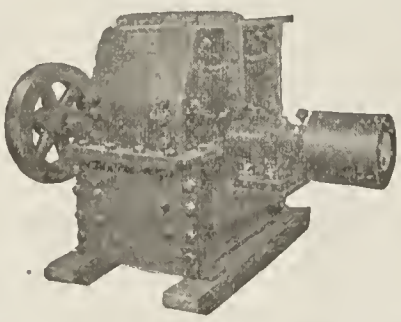


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E. F. Northrup, President and Technical Adviser.

eastern terra cotta plants). I have heard that they are repressed dry and have a special body (more vitrified than their terra cotta ware). We press our ordinary terra cotta clay out of plaster molds. The lower edges crumble and samples are not perfect.

I notice that no glaze or slip has appeared on the back of the samples from the East. Could you give me any data on No. 5?

In answer to question No. 1 will say that a gum solution or dextrine ought to be cheap enough if used in minimum amounts to prevent the rubbing off of the glaze when the ware is handled previously to being placed in the kiln.

Answering No. 2, wish to advise that we cannot very well give you an opinion on this question as it is rather indefinite.

Concerning No. 3, magnesium carbonate or cryolite is used in glazes or slips but the purpose depends upon the other ingredients.

In answering No. 4, you will pardon our frankness but it has occurred to us that you, being a chemist, should be able to work out this problem. We hesitate giving you working formulae for what may work well under one man's conditions may not do so under another's. Then we run the risk of being misunderstood or having it said that our formulae do not work. Furthermore, inasmuch as application and general manipulation mean so much in connection with formulae, this is an added reason why we do not care to hand them out.

No. 5, regarding samples which you have seen from eastern terra cotta concerns, wish to say that these practice pieces are pressed by hand or come from a small laboratory pug and are cut in soft-mud style to about the size desired. These are then allowed to stiffen and are pressed in a regular tile press (overhead screw press). A special body is not used generally and the slip or glaze is not applied to the backs of eastern terra cotta samples.

Does Inventory Include Overhead or Not?

811. *Illinois.—Referring to your series of articles on "Cost Accounting for the Clay Plant," table No. 17, in the January 2 issue of "Brick and Clay Record," lines No. 8 and No. 9, should the cost of manufactured ware as inventoried include only operating costs or should it represent the total costs, including overhead, per ton or per thousand?*

Referring to lines No. 10, 11, 12 and 13 in the same table, should the cost as shown in this inventory include only the actual cost to the first of the month of labor, fuel and power?

I am endeavoring to install a cost system following the system outlined by these articles.

The cost of manufactured ware as inventoried must include operating and overhead costs when entered on lines Nos. 8 and 9 of table No. 17, which appeared in the January 2 issue of "Brick and Clay Record."

All of the costs on table No. 17 are meant to include overhead as well as operating costs. When the inventories shown on lines Nos. 8 to 13 of table No. 17 are to be entered, we must refer to table No. 16, published in the December 5, 1916, issue, for the unit costs.

On line No. 1 of table No. 16 we find the unit cost for inventory on line No. 13 of table No. 17 and on line No. 11 of table No. 16 that for line No. 12 of table No. 17. The unit cost for line No. 11 of table No. 17 is found by reducing the cost on line No. 15 of table No. 16 to the thousand basis and adding to line No. 14 of table No. 16. By reducing the cost on line No. 16 of table No. 16 to the thousand basis, and adding to the unit cost of ware set in the kiln, we have the unit cost for line No. 9 of table No. 17. The unit cost on line No. 10 of table No. 17 is found by adding to the



unit cost of ware set in the kiln, a percentage of the cost of burning equal to the proportion of the burning which was completed before the end of the month. The unit cost for line No. 8 of table No. 17 is found on line No. 31 of table No. 16. All of these costs include overhead charges.

* * *

The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

WITH THE CAR SHORTAGE and the labor and manufacturing situation doing what years of effort on the part of the clay products manufacturers thruout the country has failed to do, namely, setting the prices for their products at a level which permits a just profit, the opening of warmer weather finds manufacturers preparing for an unprecedented period of prosperity. Altho it is a fact that the prevailing high prices will undoubtedly have a retarding effect upon the amount of building to be done during the coming year, yet, since all indications point to a steady procession of increases, it is thought that this market for burned clay products will not be seriously affected.

Predictions for increased activity, despite the upward trend of prices, are not alone based upon intangible indications of future prosperity, but find a substantial foundation in the report of building operations for January, 1917, as compared with January, 1916. It is interesting to note that an eleven per cent. increase was made in the total estimated cost of buildings, permits for which were issued in January, 1917, in 105 principal cities of the country as compared with the same period of the preceding year, and an increase of six per cent. scored in the total number of operations. It is evident, however, from the record of January building, which shows that while sixty-one cities made gains, forty-four suffered losses from last year's record, that the present unfavorable conditions are affecting building to a certain extent.

NEW YORK BRICK HITS TEN DOLLAR MARK

Taking up building developments of the past fortnight, as they apply to the brickmaking industry, we find many optimistic conditions. In New York, for instance, the long expected has happened—Hudson river commons are selling at $10 a thousand. Simultaneously, the Raritan commons became purchasable at $10.50 in carload lots at Sayreville, N. J., and second-hand commons were quoted in New York at as high as $5 per load of 1,500—the price asked for new Hudson river brick per thousand in 1914. The week ending March 3 saw common brick reported, in at least one instance, as having sold at $12. With but 1,500,000 brick in the open market on March 5, prospects were that an acute scarcity would develop should the demand become heavier, since shipments from either the Hudson or Raritan districts are blocked by the ice in the river. In event of a scarcity rail shipments may be attempted,



SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

Produces absolutely uniform heat and reduces fuel consumption. Keeps the heat where it is productive. The reduction in rejected pieces will pay for the insulation in the first month of operation.

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Write nearest Office for Samples and Information.

IT'S YOUR OWN FAULT

If you continue to have trouble on account of slipping belts
Brick plants that are using

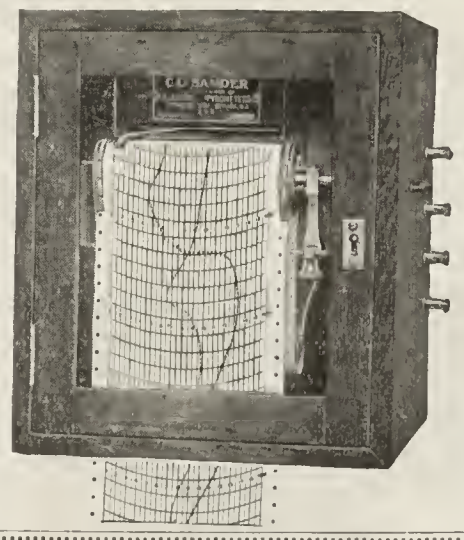
"SERO" BELT DRESSING



have not only eliminated all belt slipping, but they have also found a way to prolong the life of their belts.
Thus, if you use "SERO" you will make a double saving; and remember, too, "SERO" does not gather dust.
Order a trial can today.

SERO SPECIALTY CO., CLEVELAND OHIO

We also make "Sero" Gear and Cable Coating and Manila Rope Dressing.



Results

For Pavers—
A lower rattler test.
For Facing Brick—
Hard and uniformly colored.
For Sewer Pipe—
Sound and uniformly glazed.
For Hollow Ware—
Hard—well burned.

These are our predictions of what you can accomplish with your ware—if you are aided by a

SANDER PYROMETER

They are surprisingly low in cost. Ask for our catalogs.

The Sander Instrument Co.
136 19th Ave. Irvington, N. J.



B. & B. Two-Bucket Aerial Tramway

requires but one man for its operation, reduces cost of hauling clay and shale to a few cents per ton.

Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

Broderick & Bascom Rope Company
St. Louis, Mo.



Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

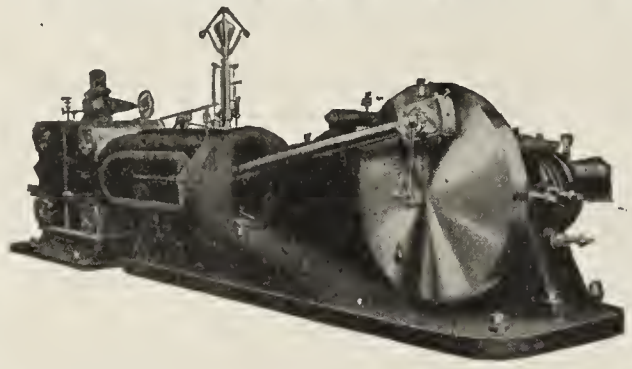


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for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

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POWER PLANTS COMPLETE
CORLISS ENGINES, WATER-TUBE AND TUBULAR BOILERS



Send for Catalogue No. 65-B

Murray Iron Works Co. Incorporated Feb. 1, 1870 **BURLINGTON, IOWA**

The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana



"Buckeye Rails Are the Standard for Quality"

THE BUCKEYE ROLLING MILL COMPANY

Exclusive.y Manufacturers of First Quality Light Steel Rails and Accessories

BUCKEYE MEANS BEST — Offices: Steubenville, Ohio

BEST MEANS BUCKEYE — Mills: Newark, Ohio

All Sections from 12 lb. to 40 lb. per yard

Write or wire us, when in need.

No order too large to handle promptly or too small to secure immediate attention.

but the freight congestion promises little to be obtained from pursuing this course. Taken as a whole, present conditions of the brick market, which has just passed thru a period of great inactivity and somnolence, are now brighter than they have been for some time. Demand is good and inquiries are coming in rapidly. A continuation of mild weather is bound to have a favorable affect upon the market and dealers expect greatly enlivened building activity in a short time. Some dealers feel that the present prices will hold until manufacturing is resumed and then expect the increased costs of labor and fuel to necessitate a further increase in the price of brick.

According to figures compiled by the building department of Newark, N. J., the total number of building permits issued in February, 1917, is 148, while those issued during the corresponding period of 1916 totaled 160. A difference, however, in the average costs of the structures was found to be in favor of this year's building. Permits for brick buildings constituted about fifty per cent. of the $532,955 worth of building work projected.

BOSTON PLANTS PREPARE FOR FUTURE

Jumping over to Boston, we find a heavy demand for new building, both industrial and residential. Brick are selling at closely approaching $12 a thousand at the present time and scarcely enough are stored to start business going in the spring. All the manufacturing plants in this section are planning increases in capacity that will enable them to manufacture more brick than ever before in their history. Prices are bound to rule high thruout the season, authorities pointing to a $10 mark as the minimum for Boston. Scarcity of lumber in this section, and the consequent high price of that material, is resulting in the construction of an unusually large number of brick structures. Much the same optimistic conditions prevail at New Haven, Conn., where brick is sold as high at $11.50 a thousand.

In distinct opposition to these encouraging reports is the building record submitted by Pittsburgh for February. Never before has this municipality experienced such a building slump as occurred during that month, the report of the building inspector showing the total valuation of new building projects to be $21,535, as against $1,321,688 for the same month in 1916. During January of this year new work aggregated in value but $735,123. Possibly no month for many years past showed such exceedingly low figures in building operations.

CONFLICTING REPORTS FROM OHIO

Thruout Ohio, adverse weather conditions seem to have had various effects upon the building industry. Altho Columbus attributes a loss in number of sixty-six building permits and in value of $90,570, during February of 1917, from the figures of the same month, 1916, to the unfavorable weather conditions, Cincinnati reports decided improvement as having been made in February over the corresponding month the last year. At this point 873 permits were granted for work to cost $841,490, while many additional permits were issued in the suburbs. The value of the work for which permits were issued was $245,370 in excess of that for February, 1916.

For the Detroit brick manufacturing plants, the coming spring and summer will be more active than any of its predecessors. For the first time in the history of the building industry at Detroit, contractors are buying brick ahead and storing them on the property where they will

do the building, waiting for the coming warmer weather to start work on the foundations. Without a doubt, it will be necessary to have out-of-town brick shipped in to supply the coming demand. The present price of common brick in Detroit is $11 a thousand, while face brick has jumped twenty per cent. and hollow tile advanced from $6 to $14 a ton.

Altho weather conditions have continued more or less unfavorable to the brick and building industries in and around Louisville, Ky., many good sized orders have been booked in the past few weeks, and the outlook for the coming spring and summer is excellent. The capacities of the plants at this point have not been overloaded to any great extent and all are now in a good position to cope with the coming demand. An increase in the price of practically all burned clay products is looked forward to with expectancy by the manufacturers. Practically no improvement in the car shortage and coal situation is reported at this point.

Jumping over the intervening territory, we find conditions on the Pacific coast good, much improvement having been experienced by this section in the past two weeks. Weather conditions up to the present time presage full crops in the Golden state for the coming summer, and consequently a condition of prosperity. Several big buildings and manufacturing plants are being planned for the bay region. Terra cotta is in good demand and face brick conditions are all that could be asked for at this time of the year. Building permits in San Francisco were not quite so heavy during February as they were for the same month last year, totaling $1,165,220 as against $1,356,915 in 1916.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Frank Howland has severed his connection with the Oakland (Cal.) Art Pottery Company and Isabella Miller will carry on the business of this concern.

M. M. Morrow, salesmanager of the Hocking Valley Brick Company of Columbus, Ohio, made a business trip recently to Pontiac, Mich., Lima and Defiance, Ohio.

John M. Stoner, the Cincinnati representative of the Hocking Valley Products Company of Columbus, Ohio, visited the Columbus offices of the Hocking Valley company early in March.

S. T. Burton, formerly district news manager of the F. W. Dodge Company, building news statisticians, has been appointed as state salesmanager of the Builders Sales Company, Leader-News building, Cleveland, Ohio.

Tom Dever, salesmanager for Ricketson and Schwartz, Milwaukee, Wis., has returned from Danville, Ill., where he attended the meeting of the agents of the Western Brick Company.

Bert J. Graham, vice president of the Denison Interlock-

Manganese Dioxide

All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

Crimora Manganese Corporation
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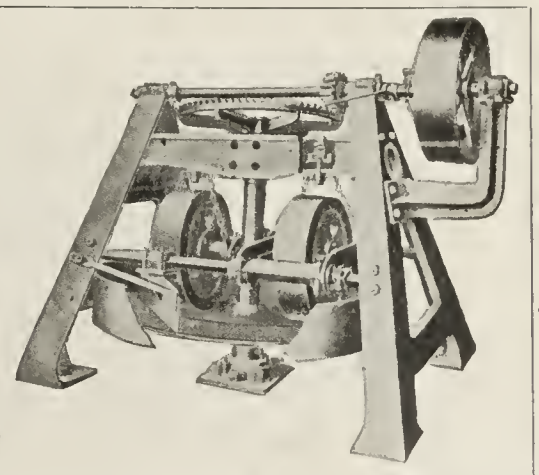
Blasting without using the CYCLONE DRILL

is like hunting deer with birdshot. You can't possibly get good results.
We are ready to offer you facts and figures to prove that the Cyclone Drill will soon pay for itself.

Ask for names of users and Bulletin No. 4

The Sanderson-Cyclone Drill Co.
ORRVILLE, OHIO

THE EAGLE DRY PAN



Write for Prices
EAGLE IRON WORKS DES MOINES IOWA

Just Published
STEAM POWER
By C. F. Hirshfeld, M. M. E., and T. C. Ulbricht, M. E., M. M. E.

This book contains the essential theory of the subject, and is written in an understandable manner.

428 *pages, 5¼x8, 232 figures.*
Cloth, $2.00 net.

BRICK AND CLAY RECORD, Chicago

SAY "I SAW IT IN" BRICK AND CLAY RECORD

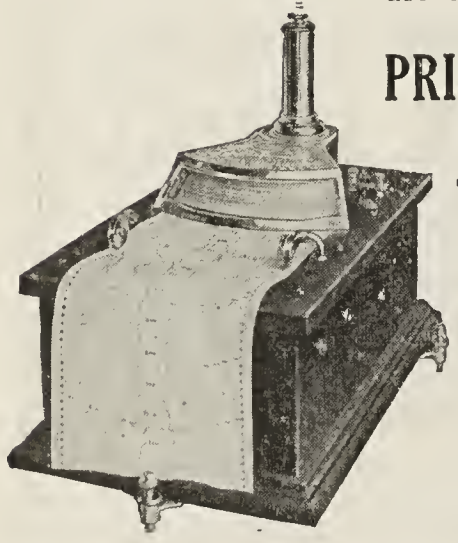
STOP, LOOK, LISTEN

In these days of unsettled labor conditions why run so much risk in the important part of your business — the burning?

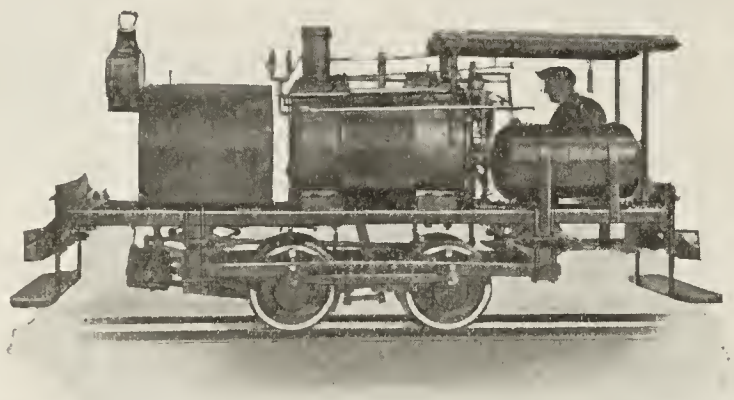
Insist on the men marking down the temperatures hourly throughout the burn and check this up with the recorder. Besides, when you once have this information it is much easier to start a new fireman right.

Save your fuel, also produce all first class ware with the use of a

PRICE PYROMETER



The Price Electric Co.
12367 Euclid Avenue
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BURNS kerosene fuel —and kerosene is only 9c a gallon—hauls a 50% heavier load than any other steam locomotive, does not require a licensed engineer and costs less to buy. Therefore—low first cost and low ultimate cost.

The Bell Steam Locomotive

BELL LOCOMOTIVE WORKS, INC.
30 Church Street **New York City**

ing Tile Corporation, Hippodrome building, Cleveland, Ohio, has returned from his trip to New Orleans, Jacksonville and the South.

Emmett Howard, salesmanager of the Claycraft Brick Company of Columbus, made a business trip in the east early in March. While in New York he attended the annual convention of the National Brick Manufacturers' Association.

John Hayes, Jr., of Douglas, Ariz., prominent among clay products manufacturers of the west, recently made a trip to Los Angeles, Cal., to join the ranks of the Benedicts. Congratulations were showered upon the new member of the order when he returned to Douglas with his bride.

F. A. Morgan of the Picher Lead Company of Chicago, Ill., has been carrying on some experiments in the laboratories of the Ceramic Engineering Department of the University of Illinois, on the flotative properties of oxides and carbonate of lead with reference to their value as glaze ingredients.

W. E. Landenberg of the Landenberg Brick Company at Stevens Point, Wis., died February 25. He was sixty-six years of age and one of the best known brick men in the state. He is survived by his widow and eight children. The Landenberg company was formed by his father in 1866.

William Kloecker of Dayton, one of the best-known brick manufacturers in Ohio, recently celebrated his eightieth birthday. A large family party attended the dinner given in honor of the venerable old "mud-mixer," who during his active career in the industry, has made millions of brick. He was born in Germany and came to Dayton fifty-eight years ago. He retired five years ago.

Clark R. Mandigo, according to a recent announcement of the Western Paving Brick Manufacturers' Association, Suite 416 Dwight building, Kansas City, Mo., has been appointed consulting engineer of that association and has been placed in charge of its service department. The organization extends an invitation to all engineers and officials to consult Mr. Mandigo freely regarding their municipal and road problems.

Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, has returned from an extensive tour thru the southeastern part of the country, where he made addresses and gave lectures before schools offering special courses in road construction. Among the schools visited by Mr. Blair were the University of Pittsburgh and the University of North Carolina. He also spoke before chambers of commerce in various cities.

Paul Kanengeiser has resigned from his position as superintendent of Plant No. 2 of the Bessemer Limestone Company to become superintendent of the Castle Clay Company, Newcastle, Pa. Mr. Kanengeiser's resignation took effect on February 1. The Castle Clay Company's plant has a capacity of 30,000 face brick a day, and has for its president Fred R. Kanengeiser; secretary and treasurer, S. D. Pierson, and vice-president and general manager, Paul Kanengeiser.

F. H. Riddle has just been appointed associate ceramic chemist with the United States Bureau of Standards, Pittsburgh, Pa. Mr. Riddle will assume the duties formerly discharged by George H. Brown, who is now director of the ceramic department of Rutgers College, New Brunswick, N. J. Mr. Riddle has had a wide experience in clayworking extending over a period of approximately eight years.



He has very recently been engaged in efficiency work on the Pacific Coast.

Mention was made in these columns recently that R. O. Cosler, formerly with the Darlington (Pa.) Brick and Mining Company, had accepted a position as sales-manager of Frederick B. Stevens' brick department, Detroit, Mich. However, another very important item, which has since been uncovered, is not to be found in that account. It has developed that previous to his accepting the new position, a certain young lady of Cleveland had "accepted" the heart and hand of R. O. C. and is now "managing" the household department of the Cosler combination. Additional congratulations are, therefore, in order to both Mr. Cosler and his new manager.

Charles H. Morang of Dover, N. H., who had been engaged in the manufacture of brick at Dover Point since 1875, died at his home in that city on February 14, aged 70 years. He was a native of Lubec, Me., and the early years of his life were spent in the fishing industry. Later he farmed, and in 1873 moved to Dover, where two years later he established a brick yard, which he continued to successfully operate until his death. He was very prominent in Dover, having held a number of municipal offices and represented the district in the state legislature. His wife died a few weeks ago. The brick business will be continued by his son, who had been associated with his father, under the firm name of Charles H. Morang and Son, for a number of years.

Arizona

The Douglas (Ariz.) Brick and Tile Company, controlled by M. O. Brown and C. Hoffman of Los Angeles, Cal., is to establish a $10,000 plant at that point.

Arkansas

The Burke Brick and Tile Company of Fort Smith, Ark., filed articles of incorporation recently, the capital stock being placed at $75,000. About $37,500 of this amount has already been subscribed. The incorporators of the new concern are H. C. McKinney, president; H. W. Hardy, vice-president; George S. Miles, secretary-treasurer; E. M. Rowe and J. W. Talton.

California

It is reported that a large body of feldspar has been discovered near Nuevo, in southern California, and plans are under way for the mining and reduction of this product.

The Board of Supervisors of San Francisco has called for bids for 170,000 vitrified kiln-marked brick to be delivered as they may be called for. Bids for the brick and tile work on the Fairmont school have also been called for.

That most of the California companies anticipate a good year is evidenced by the fact that improvements are being installed at nearly all of the plants. The outlook for terra cotta and glaze brick is especially good and a big business in hollow tile is expected.

The California Clay Corporation has taken a fifty-year lease on 30,000 acres of clay-bearing land near Ione, Cal., and will erect a $65,000 plant for the manufacture of fire brick, sewer pipe, building block, partition tile, ducts and conduits. A. S. Cunningham is manager for the new

Jenkins Bros. Valves

Specifying Jenkins Bros. means freedom from valve troubles.

Means getting the original Jenkins renewable disc valves, with body, trimmings and all working parts strong and well proportioned. Means getting valves made of a superior grade of new steam metal—no scrap or yellow brass. Specifying Jenkins Bros. also means getting valves which seldom wear out in service. All parts are made to gauge and are interchangeable, and when necessary repair parts can be obtained through your dealer at nominal cost. Most of the wear comes on the disc, which can be replaced easily, quickly and inexpensively.



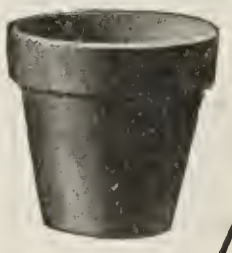
Look for the trade mark and specify the name in full—Jenkins Bros.

TRADE JENKINS MARK Jenkins Bros.

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
133 N. 7th Street, Philadelphia. 300 W. Lake Street, Chicago.
Jenkins Bros., Limited, Montreal, Canada, and London, E. C. England.

TRADE JENKINS MARK Jenkins Bros

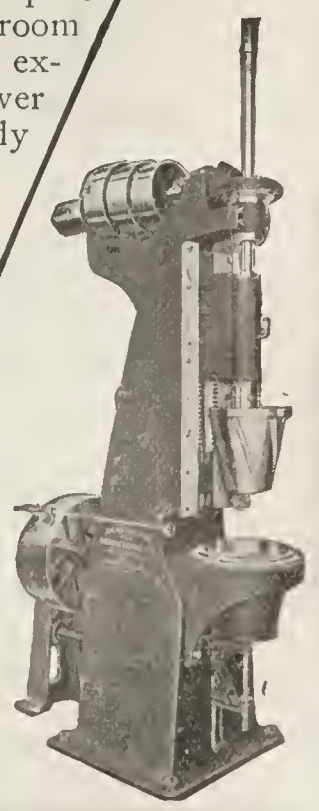


A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.



Baird Machine & Mfg. Co.
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THE STANDARD Brick Drying System

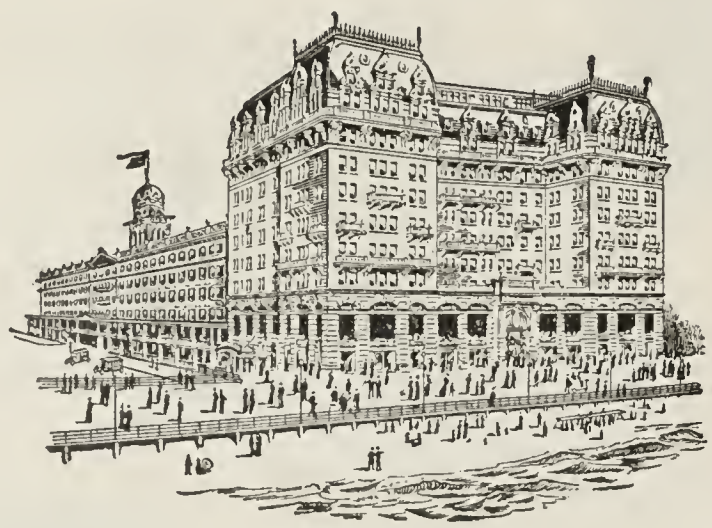
is a system that can be fitted to your particular needs as closely as a glove is fitted to your hand.

The Standard Heating Apparatus, being flexible in arrangement, is applied according to the actual specific requirements of the product in each individual case.

Control of the drying elements (heat, humidity and circulation of air) is absolute—yet very simple. Any one man around the plant can give The Standard Drier all the attention required for satisfactory operation.

We guarantee complete success. Write for the catalog and a list of the many brick manufacturers who use The Standard Drier. This obligates you in no way whatsoever. Just say: "We are willing to be shown." Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.





The Breakers

ATLANTIC CITY, N. J.

On the Beach Front **Open All Year**

The Last Addition to Atlantic City's Fireproof Hostelries

Artistically furnished and modernly equipped. A hotel of charming features and refined atmosphere. The house of service and the home of the epicure. Open air balcony restaurant facing ocean and boardwalk on main floor. Roof garden restaurant overlooking sea, where during season refined entertainment is provided.

Ample private baths with both fresh and sea water, with showers on every floor—surf bathing from hotel.

Unusually extensive lounges, porches and public rooms.

JOEL HILLMAN, President — A. S. RUKEYSER, Manager

company and their plant will have a yearly capacity of 3,000,000 fire brick.

Plans are being drawn for a six-story hospital building for St. Joseph's Hospital, San Francisco, to cost about $600,000. Hollow tile, brick and terra cotta will figure in its construction. Another new structure scheduled for San Francisco is a three-story and basement apartment building on Gough street, near Sutter, to cost more than $50,000.

Constructive advertising is becoming a factor in local business and much interest has been shown in the Building Materials Exchange exhibit in one of the larger O'Farrell street buildings. This is in charge of D. A. Cannon and the brick and tile manufacturers are especially well represented with ornamental brick for fireplaces, fancy floor tiling, etc. The Dennison Block Company maintains the largest burned clay exhibit.

The Richmond (Cal.) Pressed Brick Company is to increase the capacity of its plant on the east side of San Francisco bay by an expenditure of $150,000 for improvements. This will be principally expended on new machinery, but several new kilns will also be constructed. The Richmond company is owned by the Los Angeles (Cal.) Pressed Brick Company and John Gerlach is superintendent of the plant. Especial attention is being paid to the manufacture of pressed brick at this plant.

G. S. Randall, P. C. Bryce and W. W. Bond have succeeded Bond and Avery in the control of the proposed brickmaking plant at Kings City, Cal., according to Mr. Bryce, and have taken over the lease on several hundred acres near that city which the old company held. The machinery for the new plant, which will turn out 30,000 brick daily, has already arrived and a modern factory building will be erected immediately on twelve acres recently purchased in Kings City. It is planned to offer brick on the market by May 1.

Connecticut

The Charter Oak Brick Company of Elmwood, a suburb of Hartford, Conn., successfully defended a suit for damages instituted by Chas. K. Swenson, a florist, whose place of business adjoined the brick yard, and who sought to recover on the ground that gases from the plant had killed or seriously damaged flowers and shrubs on his premises. He asked damages of $1,200, but the jury which listened to the evidence returned a verdict for the defendant on February 15, after being out only ten minutes.

Idaho

R. K. Beatty and L. Welch recently purchased the plant of the Caldwell Brick Company, located at Boise, Idaho, and already have workmen busy putting the plant in operating condition.

Illinois

The Union Furnace Brick Company was recently incorporated at Chicago, Ill., with a capital stock of $10,000.

Improvements designed to greatly increase the capacity of the big plant of the Springfield (Ill.) Brick Company, in preparation for the heavy business lined up for next spring and summer, are under way. The company, according to officials, probably will do away with the manufacture of building brick in view of the unusual demand for its pavers.

Salesmen and outside dealers for the Western Brick



Company of Danville, Ill., recently paid a three-day visit to the home office and plants of that concern. The men were invited to Danville in order that they might be made more familiar with the company's plants and the methods of manufacturing the various products. The greater part of the three days' visit, which was concluded by a luncheon at the Elks Club, was spent in inspecting the three large plants at Danville.

Due to its inability to purchase coal, the Decatur (Ill.) Brick Manufacturing Company was forced to shut down its huge face brick plant at that point recently. "Of course, we could get coal if we went into the open market and bid up the price," said C. F. Mattes, manager of the company, "but that would be folly from a business standpoint. The premium we would be required to pay for coal under present conditions would be prohibitive. We use an average of fifty tons of coal daily the year around, without regard for the season. This is the first time since we established the new plant that it has been possible for us to continue operations all winter without so much as a shut-down, but to go into the market now and make new coal contracts is out of the question. As soon as we know that the probability of further interruption has passed, we shall recall our employes and begin operations."

Indiana

Three Chicago appraisers have completed an appraisement of the large tile manufacturing plant operated by Krick-Tyndall and Company at Decatur, Ind. The Decatur company had the three appraisers at work for more than a week going over every phase of its business.

The Hydraulic-Press Brick Company recently adopted a bonus system, based on the punctuality and faithfulness of its employes, which went into effect on February 15 at its Brazil (Ind.) plant. Every two weeks the company will give $2.50, in addition to the regular wages, to those men whose cards show full time during that period. This is equal to one day's wages at the minimum wage rate, and means a possible increase of $5.00 a month as a reward for faithful service.

At the annual meeting of the stockholders of the Fort Wayne (Ind.) Brick Company, held recently, the following officers and directors were elected for the coming year: President, Henry Hilgeman; vice-president, Max Irmscher; secretary-treasurer, Henry Keller; manager, James Ford; Henry Wehremberg, E. C. Miller and John Suelzer, Sr. The report read at this meeting showed that the company, during 1916, had enjoyed its most successful year, with prospects bright for even a greater volume of business developing during 1917.

Iowa

The Harvey (Ia.) Brick and Tile Company recently closed its plant for a short time and completely overhauled it in preparation for the heavy demand that is foreseen during the coming spring and summer.

Kansas

Tests which have been made upon clay taken from a deposit discovered in Norton, Kan., by P. Keating, it is said, indicate that the clay is of a high quality, capable of being used in the manufacture of either pressed or paving brick. It is not known, as yet, what Mr. Keating's intention are regarding the construction of a brick plant on his clay bed.

When You Think of Cars—Think of Youngstown

When clay products manufacturers who bought cars from us many years ago, simply write to us and ask us to ship the same kind of cars we did years ago—don't you think it's pretty good evidence of merit?

You will profit most if you, too, get the habit of "thinking of Youngstown" when you think of clay cars.

IT PAYS.

The Youngstown Steel Car Company,
Youngstown, Ohio

You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company
100 William Street New York
Chicago, Ill. Cleveland O. St Louis, Mo.
Kansas City, Mo. East Liverpool, O. Philadelphia, Pa.
Boston, Mass. New Orleans, La





Stock Up on Belting—Now

For your spring repairs, replacements, new machines—you will assuredly want new belts. Make your estimates on width and ply and order the rolls ahead of your necessity.

Hettrick Canvas Belting

is the best clay plant belt in existence. It resists the action of oil, dust, water and rough treatment—pulls hard and has a long life. It is manufactured with care—for you.

Hettrick Manufacturing Co.
Toledo, Ohio

PYROMETERS

for Periodical and Continuous Kilns.

BEIGHLEE'S indicating and recording installations have been selected by some of the very best plants in America.
The instruments are modern, using exclusive ideas not found in any other type. They are dependable and accurate, and perfectly adapted for clay plant work.



Send a Postal for Our Catalog

Beighlee Electric Co.
Cleveland, Ohio
Herman A. Holz, Hudson Terminal Bldg., New York, Representative in New England States

Kentucky

The Shelbyville (Ky.) city council has decided on an interesting street paving program which provides for laying of two blocks of vitrified brick pavement each year. The plan is to be put into action this year and the city will use State Aid money and lay the pavement on the street which runs into the inter-county roads, subject to expenditure of the state's funds. The city previously had two blocks of brick paved street.

Out of fourteen separate pieces of street construction work which the Board of Public Works of Louisville will undertake this spring and summer, eight call for vitrified brick surfacing. Four of the jobs specify vitrified brick from curb to curb, the others provide for use of that material between the car tracks and to some distance on the outside. The streets on which the heavy hauling will be done, and which are being reconstructed, are to be paved with this material.

Maine

The Maine Wire Cut Brick Company was recently incorporated at Lewiston, Me., with a capital stock of $10,000, for the purpose of manufacturing and dealing in brick, tile and other burned clay products. The incorporators are William J. Mahaney and Marie Lemieux of Lewiston, and Harry Day of Auburn.

Preparations are already being made for the reopening of the brickmaking plant of the Brooks Brick Company at Brewer, Me., which is to take place about May 1. Thousands of cords of wood are being hauled and piled up near the yards for use during the summer months. Some 2,500 cords, which, when stacked, make a pile nearly four miles long, are used each season and are hauled during the winter months, when the sledding is good. The Brooks company has been shipping considerable brick during the past few weeks, clearing up last year's output. A large amount is being shipped to Van Buren, Me., where the Aroostook Pulp Company is erecting a large brick mill building. The company also has the contract for the brick for a big storehouse addition for the Orono (Me.) Pulp Company, and is shipping some brick to Boston for general market use. Present indications point to an exceedingly busy summer, with prospects of running the plant far into the fall.

Maryland

The American Refractories Company has let the contracts for its new plant in Baltimore, Md., said to be the last word in brick plant construction. The work of building the plant will be carried on day and night, and the schedule calls for the machinery to be running to capacity by June 1st. Magnesite brick will be made exclusively. A. F. Greaves-Walker, formerly manager of the Sun Brick Company, of Toronto, Ontario, and the author of a number of articles on brick plant construction that have appeared in "Brick and Clay Record" during the past two years, is in charge of the building of the plant and will superintend its operation after completion.

Michigan

John S. Haggerty of Detroit, Mich., is modernizing his plant in Springwells by installing a large amount of new equipment. Due to the change, the capacity of the plant will be greatly increased.

An application was recently made by the Ludowici Celadon Company of Chicago, Ill., for space at the Detroit (Mich.)



Builders' and Traders' Exchange. This company, which manufactures burned clay roofing tile, has also established offices at 302 Ford building, Detroit, which it has placed in charge of J. G. Buddington. Its product was previously handled at this point by Thomas Brothers and Company, Ltd.

Minnesota

It is rumored that a new brick and tile manufacturing company, incorporated with a capital stock of $250,000 has been organized at Okabena, Jackson County, Minn.

An example of effective advertising is afforded by the work now being done by the Hutchinson (Minn.) Brick and Tile Works. This company is placing in conspicuous places along the country highways in its territory, attractive signs, eighteen by twenty-four inches in size, upon which is painted the following: "Tile Your Farms with the Tile That Stands Frost—Preliminary Estimates Free—Hutchinson Brick and Tile Works." Attached to each one of these signs is a unique attention-getter in the form of a sample six-inch tile.

Missouri

G. W. Thurston, secretary of the Western Paving Brick Manufacturers' Association at Kansas City, reports that the plants are all working to capacity, and that orders are filed well in advance of the output.

F. C. La Fountain of the Reliance Brick Company, Kansas City, Mo., is making preparations for the handling of an increased amount of spring business. Mr. La Fountain, like others engaged in the industry at that point, looks forward to a large increase in building during the coming year.

The Kansas City (Mo.) Brick Company, which is constructing a plant at Vale, Mo., announces that arrangements have been made for a selling office at Kansas City, but declares that the details of this step are not, as yet, ready to be made public. Work on the plant at Vale, Mo., which is sixteen miles from the city, is being pushed and completion is possible within the next month. The plant will have a daily capacity of 50,000 brick.

H. H. Crowell, salesmanager for the Hydraulic-Press Brick Company at Kansas City, Mo., reports that the business has been extremely good during the past month, and that the conditions in this city and territory are indicative of a nice increase in spring business, beginning early next month. Mr. Crowell points out that it is evident that building in this city and territory will, perhaps, double that of the past year.

According to managers of selling offices in Kansas City, Mo., the brick business during the past month has been very satisfactory. It seems to be the consensus of opinion that the Kansas City market is increasing in importance with long steps each month. The car shortage problem has not been affecting the shipments to this city to any great extent during the past few weeks, the dealers and branch office managers report, and prices have nearly all been raised, due to a ten per cent. increase in coal prices. These prices have to some degree standardized themselves, and will most likely remain in force indefinitely.

Montreal

It is said that the Mack Brick Company of Montreal, Can., which was recently incorporated, will start work next spring on a brick manufacturing plant at that point. T. W. McArthur is manager of the new company.



Marion

Steam Shovels, Dredges, Draglines and Kindred Machinery

WANT any pointers on revising production-volume *upward* and operating costs *downward?* Universal Brick & Tile Co., Oskaloosa, Mo., can probably give you some! They used to worry along with hand-labor; then they re-equipped their plant, installing a "Marion" and other improvements. Here's the story:—

9 MEN BY HAND, 40,000 BRICK DAILY
7 MEN AND A "MARION," 150,000 BRICK!

And production has become more uniform, too, because "Marions" do the same good, dependable work down in a hot, stuffy pit as they do out in the open; rain and snow mean little, so long as there's material to be dug.

Do you know what "Marion, the Clayworker's Shovel," can do for *you?* Ask us, now; no obligation!

The Marion Steam Shovel Company, Marion, Ohio

Branches: Atlanta, Chicago, New York, Philadelphia, San Francisco, Seattle

ESTABLISHED 1884

218

USE "Brick and Clay Record" Classified Ad Columns because you'll get quick action.

Published every other Tuesday, it's the **newspaper** as well as the journal of the clay-products industry.

If you need help—have a machine for sale or are looking for a second-hand machine—a classified ad in "Brick and Clay Record" will bring results.

Eight cents per word for first insertion; six cents per word for each additional insertion.

BRICK AND CLAY RECORD





EQUIPPED WITH WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

BRISTOL'S ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. Waterbury, Conn.

Branch Offices: Boston New York Pittsburgh Chicago San Francisco

Don't Shovel High Priced Coal on Solid Iron Bar Grates

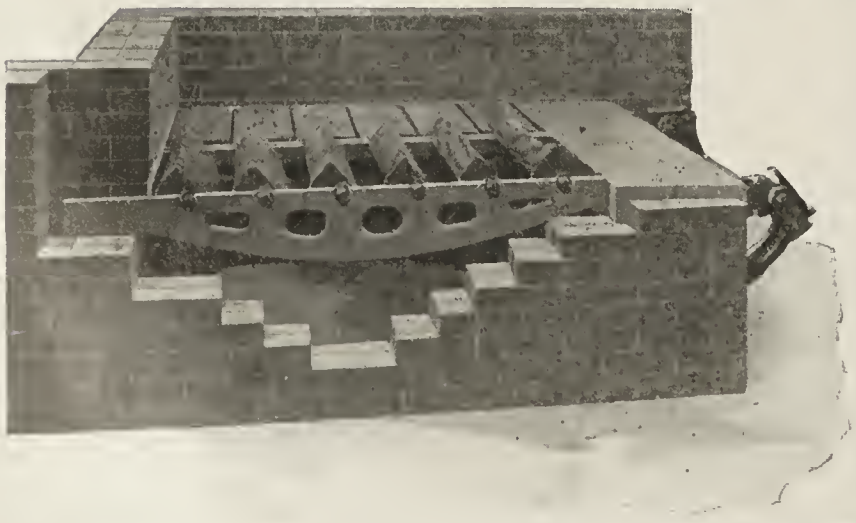
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CYCLONE BOILER GRATES

will burn a great deal less fuel to accomplish the same or better results.

They are sold on 90 days' trial. Get our guaranteed proposals.

CYCLONE GRATE-BAR COMPANY
BUFFALO, N. Y.



SAY "I SAW IT IN" BRICK AND CLAY RECORD

Nebraska

Fire, started by the explosion of forty pounds of dynamite in the company's office, recently occurred at the plant of the Rex Shale Brick Company, Omaha, Neb. Damage to the extent of $2,000 was suffered. That part of the plant swept by the blaze will be immediately reconstructed.

New Jersey

Much clay is being mined in Perth Amboy and Woodbridge township, New Jersey, according to reports of clay miners. A large amount is being shipped to the clay products plants in Ohio where the supply is somewhat limited.

Terra cotta, brick and fire proofing concerns in the Perth Amboy section have taken advantage of the building boom in Middlesex county and have recently received many large orders. Several big industrial plant buildings are under way in Perth Amboy and Woodbridge township and several smaller jobs have also been reported.

At the Homestead (N. J.) Brick Yard, the last burned brick are still untouched and waiting for delivery. Now that spring is here and the resumption of the usual activities at hand the plant will soon operate at full capacity. The Homestead company manufactured more brick this year than ever before, and has had a most successful year.

The ceramic industry in Perth Amboy and vicinity was well represented at the conventions of the National Brick Manufacturers' Association and the American Ceramic Society, just held in New York City. The stress of business caused the trip of many of the clay operators to be an exceedingly short one but, nevertheless, they were there to represent the Raritan river district at the many interesting sessions.

N. H. Sloan of Paterson, N. J., sales agent for the Beaver Clay Manufacturing Company of Beaver Falls, Pa., recently received notice of an advance in the price of that company's products of one dollar a thousand, on all grades of brick which it manufactures. Besides announcing the increase in price of its products, which became effective on March 1, the Beaver company has also discontinued all discounts. Prices are no longer guaranteed against advance. The high cost of labor and material is given as the reason for these changes.

The early opening of the Raritan and Hackensack rivers will help to relieve the conjested condition of the brick market in and around Newark, where brick has been selling this week for ten dollars at the yards, and, in some cases, gone as high as eleven dollars, but for the present, things look a little dubious to buyers. The supply in Newark is not sufficient to last until spring shipments are received, and not enough brick is now available to take care of the orders waiting for delivery. Holders are firm in their views, and refuse to make concessions on stock on hand, but insist upon full prices.

If the work of building the roads thru New Jersey which have been provided for in the new legislation is carried out as planned, the paving brick men in that vicinity will have an opportunity to land some big contracts. Roads in this state are subject to great wear, and because of the extensive automobile traffic from both New York and Philadelphia, material which has been used thus far has not been able to withstand the hard usage. Brick, the one material that will stand the wear, has never been used, and, for this reason, if some brick high-

ways can be included in the new system of roads, those interested are confident that it will be used hereafter in the construction of all roads compelled to withstand unusually heavy traffic.

Prices for brick in Hackensack are now $10 at the yard, and, with the added freight rate, they are selling at retail for a higher price than has been obtained in many years. Even when delivered by motor truck, the average price delivered is about $12. This is not prohibitive, but it has the influence of restricting building operations to a certain extent. About ten years ago Hackensack firms received as much as $15 for brick, and this is the first time since then that they have received such a good price. Quite naturally, buyers are not numerous, except where it is necessary to procure enough to finish work, or where building has been delayed as long as possible, most buyers feeling that they can wait until the new brick is on the market, tho there are many inquiries being received every day. Operations will begin very soon, however, and present inquiries are bound to materialize in future work.

Since the passing of the Standard Brick Company's soft mud brick plant at Mountain View, N. J., into the hands of Judge Patrick Dolan of Newark, N. J., some very important improvements have been made. The plant, which had previously been operated under a receivership, was in very poor condition when it was taken over by its present owner, but with the installation of a new machine for manufacturing 45,000 brick a day and improvements in the methods of drying and burning which have been employed, it is expected that it will soon be in first class condition. Some trouble is being experienced in the pit from excessive water, but it is thought that with the proper pumping facilities, this difficulty can easily be surmounted. The company recently received an order for 300,000 brick which, with others on the books, will keep it busy for some time to come.

North Dakota

William J. Elliott, general manager of the North Dakota Press Brick Company of Dickinson, N. D., is said to have organized a clay products manufacturing company at Bismarck, N. D., to manufacture hollow building tile. It is understood that the company will erect a plant to cost about $100,000 at once. Being located where shipping facilities are exceptionally good, the company will be able to market its product under very favorable conditions. Mr. Elliott will have active charge of the new enterprise and will also retain his present position with the North Dakota Press Brick Company.

Ohio

The Warren B. Ferris Brick Company of Columbus, Ohio, recently increased its capital from $50,000 to $100,000.

The C. and B. Clay Company was recently incorporated at Canton, Ohio, with a minimum capital stock of $75,000 and a maximum of $300,000.

Brick dealers in Cincinnati, Ohio, have announced an increase in the price of brick and other building materials of thirty per cent. owing to the increased price of coal.

The Hoytville (Ohio) Clay Company has been incorporated with a capital of $30,000 to manufacture clay products. The incorporators are Dan B. Spitler, Edward Wagner, U. Dishong, W. D. Simon and Charles L. Sawyer.

The Stevens Pressed Brick Company of St. Bernard, is







"SCANDINAVIA"

(Solid Woven Cotton Belt)

is the kind of belt that gets the preference from those clay-products manufacturers who are most particular about knowing the exact cost of operation in every detail.

"Scandinavia" always shows up so well when the manager looks over the cost figures that there never is any question as to the belt that will always have the preference.

"Sandinavia" is the belt for you to use for power transmission—elevating and conveying.

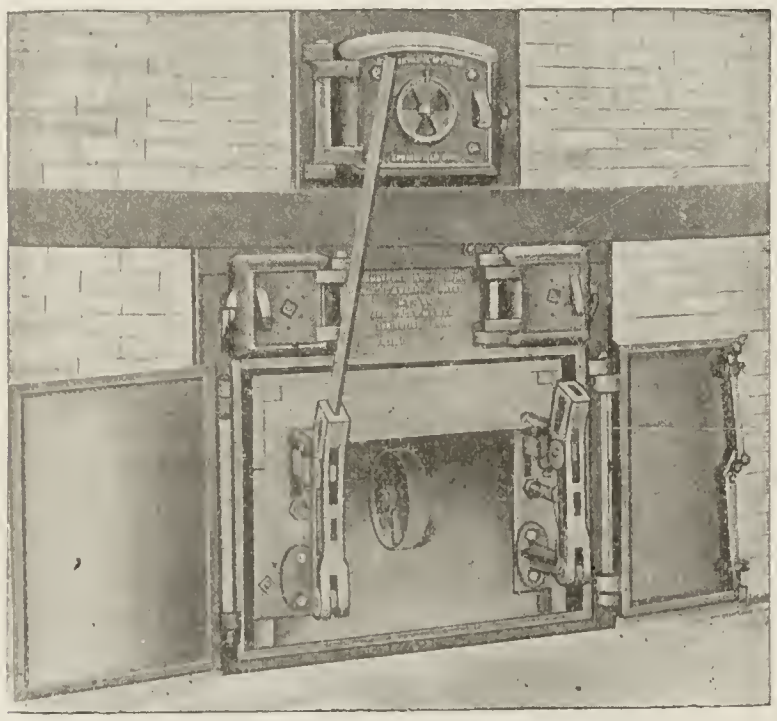
Try it once and you'll be convinced

Scandinavia Belting Co.

106-108 Reade Street, New York

Branches: Atlanta, Boston, Buffalo, Chicago, Cleveland, Easton, Pa., Pittsburgh, San Francisco, Los Angeles, Portland, Ore.

Canada: Federal Engineering Co., Limited, Toronto and Montreal.



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

a recent addition to the ranks of Ohio brick manufacturers. The company was incorporated with a capital stock of $25,000 by Arthur W. Murray and others, and will establish a plant in the St. Bernard district of Cincinnati.

The Baltic Clay Products Company of Holmes county, Ohio, has been incorporated with a capital of $50,000, to manufacture clay products. The incorporators are U. S. Pershing, James M. Rinehart, S. Gerber, W. D. Gonter, L. T. Pershing and E. F. Steiner.

Many of the paving brick manufacturers of Ohio attended the annual meeting of the National Paving Brick Manufacturers' Association which was held at the McAlpin Hotel, New York, last week. Owing to press of legislative matters, J. R. Marker, commissioner of the Ohio Paving Brick Manufacturers' Association, was unable to attend the meeting.

Following a recent cave-in on its property, the Roseville Brick Company near Lancaster, Ohio, discovered a four-foot vein of good coal. If investigation proves that the vein is sufficiently extensive it will be mined to provide fuel for the company's operations. The present high price of coal makes the find especially favorable.

It is rumored that a brick manufacturing plant is soon to be constructed at Ironton, Ohio, on a large tract of land recently purchased by New York parties, for whom S. A. Condict of New York acted as attorney. The land was purchased at a price of $82,500, is rich in minerals, and contains sufficient clay and coal, it is said, to run a large brick plant without outside assistance.

The Massillon (Ohio) Brick and Tile Company, which was recently incorporated with a capital stock of $40,000, owns a nine-kiln plant three miles from that city, which has a daily capacity of 40,000 face and common brick. According to William G. Clements, one of the interested parties, the capacity of the plant will be increased to 60,000 brick a day, and other improvements will be made to make it one of the most modern plants in that section.

Efforts are being made by the Ohio Paving Brick Manufacturers' Association to have the state road laws so amended that the revenues of the Ohio Automobile Department may be expended for repair work, even when the materials used are not the same as were used in the original construction of the road. At present only about $20,000 of the $2,000,000 revenues of the Ohio Automobile Department can be used yearly for brick construction.

The small labor troubles at the plants in the Shawnee district of Ohio, which resulted over the interpretation of several clauses in the new wage agreement, have all been smoothed over and the three plants operated by the Ironclay Brick Company and the Claycraft Brick and Mining Company at Shawnee, and the Straitsville Impervious Brick Company at Straitsville. The labor supply is adequate for the present.

Akron capitalists, including A. R. Markle, formerly general factory manager of the Robinson Clay Products Company, A. M. Walker and A. B. Eaken, are organizing a company to operate a plant at Bedford, Ohio, for the manufacture of clay bottles, marbles and similar clay goods. A company is to be organized with a capital stock of $100,000, and a site of thirty acres has been acquired for the factory. Messrs. Markle and Eaken will continue to operate the plant of the Standard Toy and Marble Company at Akron.

James R. Marker, commissioner of the Ohio Paving Brick Manufacturers' Association, in speaking of the out-



look, said: "Conditions at present are mighty uncertain. Of course there will be a good demand for pavers during the present season but the uncertain factors are the price of coal, the price of labor and the car supply. All three are important factors in making up the cost of our product and consequently many of the manufacturers are loath to tie themselves up to contracts under the unsettled conditions."

The city of Dayton, Ohio, has a new building code, adopted by the city commission on December 31, effective March 1, which is one of the most complete and exhaustive in force in any city in Ohio. It consists of over two hundred pages and covers every phase of building work. One reason for its effectiveness is that the committee which framed it consisted of practical men, W. H. Crume, brick manufacturer, being chairman, while Harry I Schenck, an architect, was one of the associates. The code consists of ten parts, each devoted to a separate section of building work.

Subscriptions are being taken to the Moomaw Clay and Tile Company, which is to be incorporated with a capital stock of $200,000 and which is to construct a plant at Stone Creek, Ohio. An option has been taken on the 111-acre farm on which is now located the plant of the Stone Creek Clay Company, which has been in successful operation for a number of years. The new company will manufacture face brick and, according to present plans, will have a daily capacity of 100,000 brick. It is understood that a number of Akron men who proposed to take the output of the plant, are interested in the project.

Altho plans for the construction of the State brick plant have by no means been abandoned, and, in fact, the erection of such a plant likely to be started during the present year, the state legislature has decided to renew its lease on the Junction City (Ohio) plant, which it has been renting at an annual cost of $4,000. The state owns valuable property near Athens, where it is proposed to erect a brick plant employing at least two hundred prisoners. Before this is ready for operation, however, additional brick will be needed for buildings proposed at the various state institutions, which will keep the Junction City plant operating to capacity during the year.

What may be considered the first adequate example of the coming use of national highways, made possible thru the use of brick road construction, was seen this week in Cleveland, Ohio, when several automobile manufacturers of Detroit, Flint and Toledo, facing an air-tight embargo by railroads through northern Ohio, adopted the plan of the native or the desert of Sahara who originated the camel train, and made their automobiles pull their own freight, so to speak, to Cleveland. During the past week several hundred cars of different makes worked their way to Cleveland. This was made possible, according to information received by the National Paving Brick Manufacturers' Association from local distributors, because much of the road over which the new cars traveled was paved with brick.

Another blow was recently dealt the paving brick manufacturers by the Ohio House of Representatives, when it adopted the Mulcahay Bill, providing for considerable highway construction during the coming two years. Upon the motion of Minority Leader Reighart, an amendment was included, making compulsory the use of paving brick made by the convicts at the Ohio Penitentiary. This is a strong provision and they must be used on all main

"Entire Satisfaction"

What greater praise could be given transmission equipment?

The Burton-Townsend Company, Zanesville, Ohio, say: "We have had some of the Hill-Clutch Equipment in for three or four years, and same has given **entire satisfaction.** A couple of years ago we made some changes at one of our plants and **installed additional equipment** from this concern, and this also has been doing **all we could expect of it.**

"We think the Hill Clutch people turn out a **very high grade of transmission machinery.**"

You can't get away from testimony like this from a concern that knows by actual experience. Read the letter again, and then write us for catalog and further details. Our equipment will prove just as satisfactory in your plant.

The Hill Clutch Company
Cleveland, Ohio

NINE
MORE PLANTS
Fully Equipped With
THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS
During the Month of **FEBRUARY**

There Must Be
REASONS

Ask for copy of new booklet—
"Pyrometers for Clay Burners"

Thwing Instrument Company
3336 Lancaster Ave., Philadelphia



You Can Enjoy Results Like This



Hook Down-draft Kiln at Plant of RUPP CLAY PRODUCTS COMPANY

Jasper, Mich., Feb. 2, 1917.
Hook Patent Kiln Co., Columbus, Ohio.
Dear Sir:—As I promised you I would let you know how my kiln is working, I will do so.
The kiln works fine with good results, and a saving of at least half the fuel and two-thirds of the time in burning, over the old system.
We get much better burns and I think we can burn it in less time than we have. We get even burns and don't have but a few checked tile.
I think if any body is thinking of remodeling their kilns or building new ones they can't go wrong by putting in Hook Down Draft Kilns.
Yours very truly,
Lewis Rupp, Jasper, Mich

At this plant the Hook System was first installed in an old kiln.

We can make our first letter to you more interesting if you give us number and size of your present kilns, kind of fuel, clay and ware, together with present burning time and fuel consumption.

HOOK PATENT KILN CO.

High and Spring Streets
COLUMBUS, OHIO

Kiln Bands—Grate Bars
and Clay-Plant Accessories

market and inter-county roads, whenever available. The bill itself was designed to revise the Cass road law, passed two years ago, in which many conflicts have developed. Manufacturers of paving brick will make a strong effort to kill the amendment when the bill comes up for passage in the senate.

D. A. Evans, secretary of the Nelsonville (Ohio) Brick Company, who has been making his headquarters at Nelsonville, has moved his offices to No. 8 East Broad street, Columbus, in connection with the sales offices of the concern, under the charge of Charles Frank. The offices of the Hocking Valley Brick Company, of which M. M. Morrow is salesmanager, have been moved to the same location. As announced several months ago, there has been a combination of the Nelsonville Brick Company and the Hocking Valley Brick Company, altho both concerns are still operated under their former names. According to Mr. Frank, there is a rather bright outlook for paving brick during the coming season and several lettings have been made, notably in Columbus, Lima and Defiance.

At the recent annual meeting of the Cincinnati (Ohio) Building Construction Employers' Association, John K. Peck was elected president. Other officers elected by the 150 members present were William Griffith, Edward Morgan, W. J. Pugh and Thomas Lee, vice presidents; G. Ellis Hummel, treasurer, and Charles F. Walz, secretary. Secretary Walz and E. M. Crang, secretary of the Chicago Building Construction Employers' Association, made the principal addresses, while Architects C. M. Stegner and Harry Hannaford, Building Commissioner George E. Rendies of Cincinnati, and C. T. Handman were also called upon for remarks. William Harig, retiring president of the organization, was presented with a handsome piece of jewelry. The affair was held at the Hotel Gibson.

While the railroad situation in Ohio has improved slightly under the influence of better weather and increased energy on the part of railroad traffic manager, freight congestion is still the worst drawback to a more active brick trade. Embargoes on many of the roads have effectually prevented shipments eastward and little is moving north, especially into Detroit. Embargoes come and go on some lines, but the net result is a very slow movement of cargoes into centers where embargoes have been lifted. The hearing before the Ohio Utilities Commission, which closed last week was productive of but little that would assist the Ohio shipper. However, it is believed that warmer weather will aid in the more rapid movement of freight. It appears to be more a lack of motive power and terminal and switching facilities rather than a shortage of equipment.

The long standing controversy between the home and investment builders of Cincinnati and the brick contractors over the important question of who has the right to select and buy the brick for a building, is to be arbitrated, A. W. Hayward, J. G. Cooper and Charles F. Nead having been selected as a committee for that purpose. In the meantime it is understood that the builders will continue to purchase the brick for structures started. The contractors have for some time insisted that it is their right to place the brick order, but the builders take the view that the contractors are employed to provide the labor only, and that they have nothing to do with the purchase of the material. The matter is obviously one of considerable importance, and unless it is settled amicably before the building season begins, it may result in trouble. The contractors have indicated their intention of conferring with



labor representatives at Indianapolis before taking final action.

The Bessemer Limestone Company of Youngstown, Ohio, recently sent out announcements to the trade to the effect that increased cost of fuel had made it necessary to advance the price of its paving brick one dollar a thousand, making the price $19.25. This advance makes a total of $2.25 recently added to the price of blocks, due principally to the cause cited. A statement from General Manager C. C. Blair was to the effect that if coal prices continue to advance, or even stand at their present level, still further increases in brick prices will be necessary, in order to enable manufacturers to meet the cost of doing business. He pointed out that it requires about a ton of coal to burn a thousand brick, and that coal now costs about $3 a ton more than it did a year ago, making a corresponding increase in prices practically unavoidable. It is said that the company is seriously considering mining coal from some beds on its properties.

No tie up of business in the brick and allied industries of northern Ohio will result from the lockout by Building Trades Employers' Association of members of the Hod Carrier, Building and Common Laborers Union, at Cleveland, Ohio, which was declared on March 1. This was the statement of leading members of the clay working industry, after a study of the situation. A wail of protest by union leaders that the lockout is a fight against organized labor and that a strike of all allied unionists might be called, was cause for fear that the building industries, being hampered, might suffer a serious loss of business. As a matter of fact, even a general building tie-up would not affect the brick industry for some time to come. It has been estimated by leading houses that the trade as a whole is 20,000,000 brick behind, while orders continue to come in. The plants will continue to make brick just the same.

Oregon

The Beaverton (Ore.) Brick and Tile Company has been reorganized and new capital will be introduced into the business. Drain tile is to be added to the list of products manufactured.

Pennsylvania

A. J. Haws and Son, Ltd., of Johnstown, Pa., has commenced excavation for a ganister brick manufacturing plant at Lewiston, Pa.

The Board of County Commissioners, Uniontown, Pa., has voted to use brick paving on two main roads, known as routes Nos. 112 and 117, in Menallen and Bullskin townships.

The Union Coal and Clay Company of New Galilee, Pa., has been organized with a capital of $20,000, to deal in clay, brick, coal and kindred products. Harry R. Beegle is head of the company.

Rhode Island

The plant of the Barrington (R. I.) Steam Brick Company has been operated thruout the winter for the first time in many years. The company still has many orders on hand and plans to continue operating at full capacity thruout the summer. The pressure for building material has been so strong that even on the coldest days the company has been unable to let up without falling behind on important contracts.

COAL SERVICE

Clean coal, any size you wish, long flame, quick ignition, low ash—shipped to you regularly—and on time—just when you want it.

That's Service

The kind that you want—the kind that we give.

Good coal, truly great for clay burning delivered in sufficient quantities — on time—is RUTLEDGE & TAYLOR SERVICE.

Our

Nokomis and Livingston

coals are recommended.

No expense has been spared to make good coals **better.**

That is why it is profitable to use them.

Capacity daily, 13,000 tons. Freight rates quoted promptly.

Rutledge & Taylor Coal Company

CHICAGO ST. LOUIS





Which One of These Are You Going to Depend on This Season?

Even if you could get enough "wheelers" (and you know you can't) the

Automatic Electric Elevating Platform Truck

would be far more economical and efficient. But—you can't help but know that labor is going to be more scarce and undependable than ever before—especially common labor. Those clay product manufacturers who look ahead and prepare, instead of waiting for trouble to hit them, are adopting this modern method of hauling their finished ware.

Why not let our engineers talk this over with you? There will be no obligation.

The Automatic Transportation Co.
2933-2965 Main Street
Buffalo, N.Y.

Pioneer Manufacturers of Electric Storage Battery Trucks, and the Only Truck Manufacturers Awarded Gold Medal at San Francisco Exposition.

Tennessee

The Banks-Mitchell Company has been incorporated at Chattanooga, Tenn., with capital stock of $5,000, by L. A. Banks, Lon W. Mitchell, A. Shalliday, S. R. Roddy and A W. Chambliss and is reported to be contemplating the manufacture of fire brick.

Texas

C. C. Frampton of Groesbeck, Tex., is negotiating with the Chamber of Commerce of Temple, Tex., to build a large brick plant there. Extensive beds of shale deposits are said to be located near Temple, which are suited for the manufacture of clay products.

At a meeting recently held at Dallas, Tex., plans were discussed by the brick manufacturers of that state for a state-wide advertising campaign. Arrangements for carrying on this work are to be perfected as quickly as possible, and it will be vigorously waged for another year, at least.

The Superior Clay Products Company of San Antonio, Tex., is building an addition to its plant which will increase its capacity from three cars to six cars of hollow tile daily. The officers of the Superior company are Adolph Wagner, president; C. T. Priest, vice president, and J. R. Martin, secretary and treasurer.

T. H. Sears will lay 198 tons of four to six-inch drain tile upon his farm near Whitewright, Tex. The main and lateral lines will have a total length of about nine miles. J. C. Olsen, agricultural engineer of the extension service of the State Agricultural and Mechanical College, will be in charge of this work. The drainage of this bottom land by means of tile ditches is expected to prove a valuable demonstration of the use of tile to the farmers of northern Texas, which will lead, it is believed, to many other orders for tile being placed.

Utah

The Ashton Fire Brick and Tile Company of Ogden, Utah, has just completed a number of improvements to its plant. These include five new down-draft kilns and a 190-foot smoke stack containing more than 250,000 brick.

Washington

The Tacoma Smelting Company has awarded the contract for the erection of its huge smoke stack to the Alphons Custodis Construction Company of New York and Seattle. The contract for the 3,000,000 brick for the stack went to the Denny Renton Clay and Coal Company. The stack will be the largest in the world, being 571 feet high and twenty-five feet wide at the top.

According to Mr. Bale, one of the owners of the Twin City Brick and Tile Company of South Bend, Wash., business is fine. This company recently sold an order for over 100,000 brick and are now placing upon the market a hollow silo tile which is meeting with a hearty reception on the part of Washington farmers. Despite the fact that the use of this material in the construction of silos is new in that section, the company has already sold tile for two silos, to be constructed shortly.

Wisconsin

The Wisconsin Face and Fire Brick Company is remodeling its sample room. One of the new features will be a brick arch with a lattice roof and a brick walk lined by a brick fence on either side leading to the sample room.



MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Bristol's Automatic Temperature Controllers

In the field of temperature measurement, as applied to industrial works and manufacturing plants, the logical steps are:

First—To measure and indicate the temperature with a reading instrument.

Second—To automatically record the temperature with a graphic recording instrument, and

Third—To automatically control the temperature.

At this time manufacturers are endeavoring to use automatic apparatus wherever possible, thus eliminating the personal element, and there is a demand for automatic temperature controllers in many processes already.

The Bristol Company of Waterbury, Conn., have developed a comprehensive new line of automatic temperature controllers for gas and oil-fired and electrically-heated furnaces. The principle of operation of the new Bristol Temperature Controllers is to employ three elements: The measuring element, the contacting element and the operating element.

The measuring element consists of a number of different types of Bristol Electric Pyrometers and Thermometers, notably the Bristol thermo-electric pyrometer with Weston millivoltmeter movement and patent Bristol separable couples; also the Bristol vapor-filled type of thermometer, which is very extensively used for recording temperatures.

The controlling element is combined with the measuring element, and consists primarily of a patented electrical contact closing device, which operates at predetermined high and low temperatures, and by means of this electrical circuits are closed or opened, thus energizing or disconnecting the operating element.



Fig. 1 Shows External View of Measuring and Controlling Elements

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE

R. D. WOOD

AND COMPANY

Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.



YOU DON'T DARE use as much coal this year as last.

You can't afford it—and in order to keep your costs within reasonable limits you simply must burn less fuel.

To continue as usual with the old type of furnace would be permissible and perhaps pardonable if there was no other method that was superior.

The Canton Grate

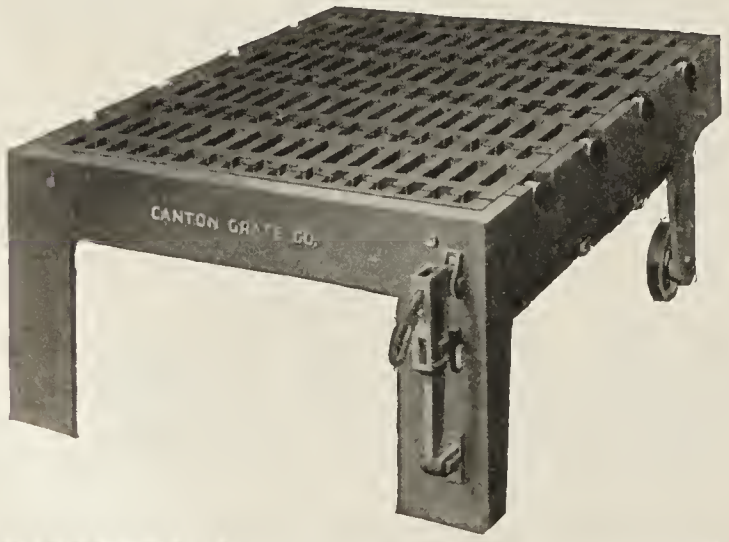
is superior.

It is designed to be both shaking and dumping—clinkering is almost eliminated, for the grate can be kept clean and clear by using the shaking device at hourly intervals or whenever needed, consequently the firemen are enthusiastic. There is almost no loss of heat when firing and cleaning, there is no loss of live fuel in the ash. The best plants in the U. S. A. are using it. Why not you? Did you get our catalog?

The Canton Grate Co.

1906 Woodland Ave.

CANTON, OHIO



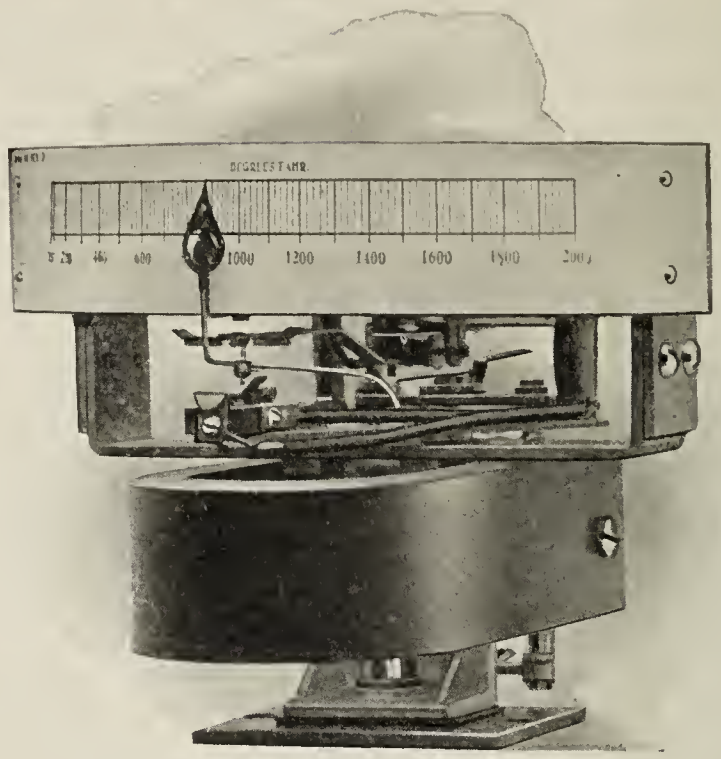


Fig. 2—Interior View of the Controlling Element

The operating element consists of the device which actually regulates the heat supply in the furnace, as, for instance, in the case of a gas-fired furnace, a pair of electrically-operated gas and air valves, and in the case of an electric furnace it consists of a special relay switch, opening and closing the circuits of the heating element of the furnace.

The construction of the new Bristol Temperature Controllers may be seen by reference to the accompanying illustrations.

Figure 1 shows an external view of the measuring and controlling elements of the thermo-electric type, and Figure 2 is an interior view of the controlling element, from which it may be seen that the indicating arm is completely insulated from the operating circuits. The contacting device is absolutely frictionless.

These Bristol Thermo-Electric Temperature Controllers can be furnished for all temperatures up to 3,000 deg. F. and with high resistance movements for use either with base or precious metal couples.

Figure 3 shows one of the special gas and air valves two of which are used in connection with gas furnaces, if air is supplied at a pressure, and both gas and air valves are operated simultaneously, so as to insure having the proper mixture at all times.



Fig. 3—One of the Special Gas and Air Valves Used in Connection With Gas Furnaces

SAY "I SAW IT IN" BRICK AND CLAY RECORD

Figure 4 shows one of the vapor type Bristol Thermometer-Thermostats, complete with sensitive bulb and connected to the special relay switch employed for adapting these instruments to the control of temperatures in electric ovens and furnaces.

Figure 5 shows an interior view of a similar Bristol Thermometer-Thermostat. This special design of contact closing device has proven very practical and durable in long continued service. Both the high and low contacts are shown in this illustration, but with the Bristol automatic electrical controlling valves for both gas and air supply, only one contact is required.

These temperature controllers are needed for a great variety of applications and may be adapted to hundreds of processes where similar Bristol Instruments are already being used successfully for measuring and recording temperature. For further information write to The Bristol Company at Waterbury, Conn.

* * *

The Importance of a Charge Slip

By Donald R. Donley, Chicago

One of the cleverest little business sermons that I have seen for some time consists of two pictures. One picture shows a bill hook on which hangs a lot of five and ten dollar bills, with the wording under it:

"You wouldn't take care of your money in this way."

The other picture shows a similar bill hook hung full of charge and C. O. D bills. Under it is the legend:

"Why do you keep your valuable charge records like this?"

The more you think of these pictures the more you recognize the truth of the sermon preached.

Inventive genius has provided modern means for safeguarding a manufacturer's coin and currency, even to the point of recording each transaction of each person who has access to the cash register. But, until now, the still larger leaks that come from carelessness in handling charge accounts have not been adequately provided against. A charge slip for ten dollars against a customer is worth ten dollars, because, if the evidence of indebtedness is lost, the chances are that the money will be lost. Yet manufacturers and others who sell on credit are woefully careless with their charge business.

Why is it that, of two concerns with apparently equal prospects of success and equally equipped with brains and business experience, one builds up a good business and makes money, while the other, after struggling along for months or maybe years, fails?

My experience as a banker supplies the answer, that in almost every case where an honest, experienced, industrious manufacturer fails it is because he robs himself of his profits through lax methods of handling his charge accounts. Indeed, it is almost axiomatic that any manu-

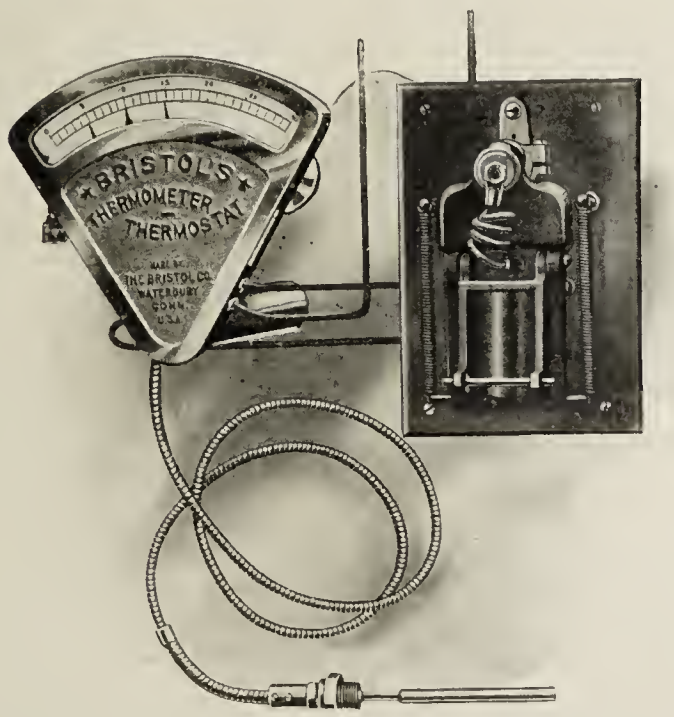


Fig. 4—Vapor Type Bristol Thermometer-Thermostats, Complete With Sensitive Bulb



Conditions that spoil *ordinary* belting do not affect Gandy Thresher Belts. They are weather-proof and service-proof.

For thirty years they have given absolute satisfaction in all thresher work. Today they are used and endorsed by 30,000 threshermen. The ravages of rain, of dirt, of oil, of grease do not harm Gandy Belts. They do not stretch, shrink or harden. These alone are tangible money saving advantages for *you!*

But more—they transmit maximum power because, being cotton stitched, they hug the pulleys closely.

Gandy Belts are *made* to resist the hardest kind of work—and they *do*. They provide absolute satisfaction or you get a new belt *free*. There is no substitute for Gandy Belts.

The Gandy Belting Company

732 West Pratt Street
Baltimore, Md.

New York Branch: 36 Warren Street



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

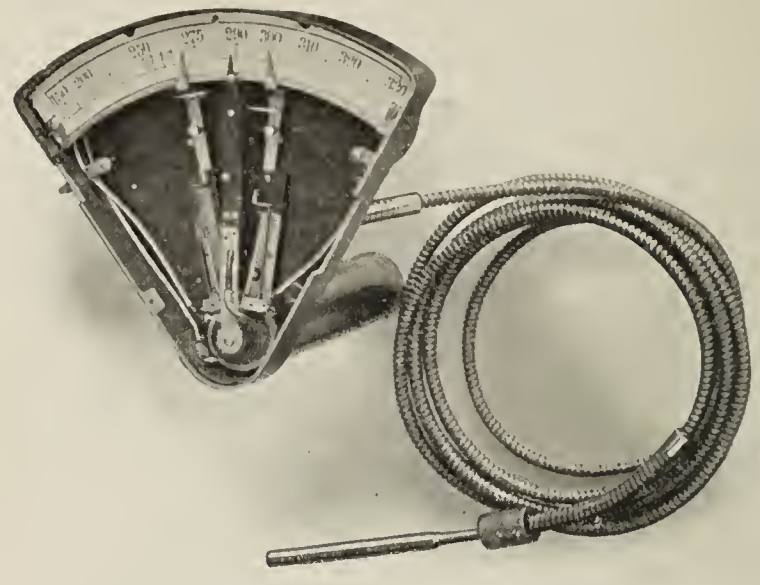


Fig. 5—Interior View of Instrument Similar to That Shown in Fig. 4

facturer, to prosper, must be careful with his credit business.

In making commercial loans the first questions I ask an applicant for a loan, concern his charge accounts. If he can answer me at once, I know that he is in close touch with his business, deserves consideration and is entitled to a hearing, as he at least knows what he is talking about. If he shows ignorance of the details of this vital part of his business, his application is politely refused.

The business man who is satisfied with approximate totals—his own, or his bookkeeper's—is a poor risk, and invariably on checking up a failure the receivers find the great majority of such credit accounts to be worthless.

A TYPICAL CASE

I remember one case of a merchant in a Western town who was reputed wealthy, but who suddenly failed, and when the receivers went through his books they found $85,000 of worthless accounts which he had been carrying as good and collectable.

These losses had two principal causes: credit risks that were bad from the start, and risks that may have been good originally, but were allowed to lie so long that they became uncollectable for various reasons. How much more that merchant lost by forgetting to charge altogether, nobody will ever know. And no one will ever arrive at even an approximate estimate of what it cost him to keep his charge slips on spindles on an open desk, where they could be tampered with or destroyed either by debtor customers or tempted clerks.

REMEDY IS AT HAND

Now a new credit file that I have just seen will put a stop to all three of these serious forms of leaks. It really takes the place of both a day book and ledger, and the only "posting" that is done is the writing of the charge slip, of which the customer gets the carbon copy, and the filing of the original copy in this unique device.

The file is divided into two compartments, an open one in front, and, back of that, a locked compartment with a plate glass top. The act of pulling forward the vertical guides in the front compartment does three things:

1. It rings a bell.
2. It registers a serial number.
3. It opens the corresponding guides in the locked file so that the clerk can look through the glass top and see the previous charge slip of the customer, which is filed in such a way that the name and the total amount of indebtedness are exposed.

The clerk files the original sales slip under the customer's name in the front or day-book compartment, and each night the proprietor or his delegated authority unlocks the glass-covered rear compartment and transfers the daily charges to the proper locations in the permanent, or "ledger" file.

To my mind, the major function of this new credit-file is to compel the filing of all charge and C. O. D. slips in a safe place, where they cannot be mislaid, altered or destroyed. Equally important is the fact that this file shows



the proprietor of any business in a graphic way, each evening, exactly the extent and condition of his credit business.

The new credit file not only tells them the general condition of their credit business but the actual status of each charge or C. O. D. account, as well as the amounts paid on account each day by each customer.

Less Labor—More Work

That the ensuing year will produce even a greater paucity of labor than that felt in 1916 is a certainty. One way to combat this condition is to install the labor saving appliances that are proving themselves of worth on other plants.

Anderson's Brick Conveyor System produces a condition in the soft mud plant that is very desirable. It elimmates the drudgery of wheeling over uneven ground from racks to kiln setters. It saves in many ways, for instance, the wheelers are released for other work; the ware is not chipped or bumped in transit to setters, and in other ways it is invariably a valuable acquisition.

Seventeen installations have been sold during the last few months, some of them repeat sales, showing again conclusively that the Anderson Conveyor System is meeting, in actual service, all of the manufacturer's claims for it.

This device is manufactured by the Marinette Iron Works, at Marinette, Wisconsin.

At the N. B. M. A. Convention

In accordance with their usual custom, the American Clay Machinery Company of Bucyrus, Ohio, kept "open house" during the entire week. Their headquarters on the twelfth floor was the Mecca for practically every clayworker attending the convention. That same spirit of good fellowship was always on tap and each caller was greeted with a handsome and most practical memorandum book. It was also the delight of patriotic Frank L. Hopley, advertising manager, to place on the lapel of every coat a badge showing the American colors. Everybody was wearing one. Lambert Haigh of this company was also constantly propounded with questions relative to the kiln which bears his name, and with particular reference to possibilities for fuel saving.

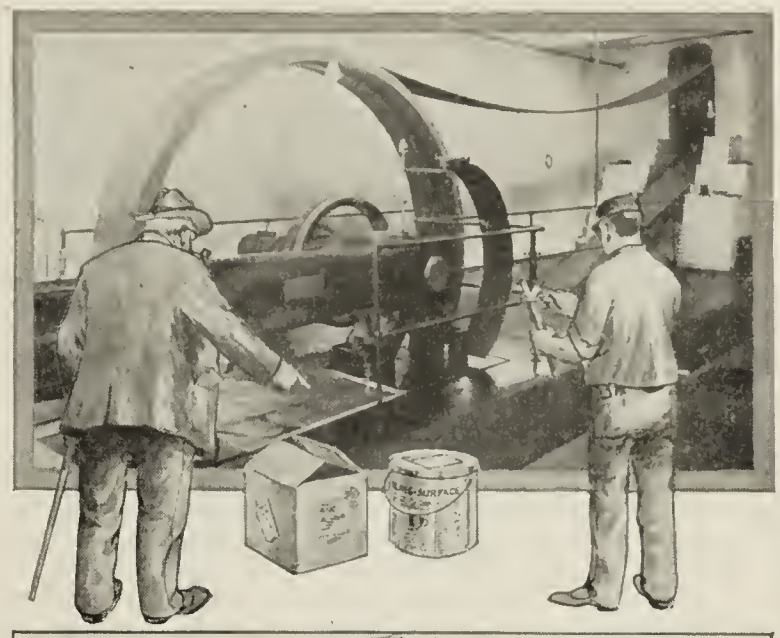
Others in attendance at the American Clay Machinery Company parlors were R. C. Penfield, president; L. W. Penfield, vice-president; Davis Brown, W. R. Cunningham, James P. Martin of the New York office, and R. O. Perrott, secretary.

The Aspha-Bric Company was represented by W. H. Kershaw and R. P. Barrett, of the New York office, and L. W. Gay, of Buffalo. They had a display of bricks treated by this process, and between the meetings their table on the twenty-fourth floor was constantly surrounded by a large number of paving-brick enthusiasts anxious to get first hand information relative to the possibilities in this product.

The Bonnot Company, of Canton, Ohio, was represented as usual by A. A. Oldham, secretary and treasurer, assisted by David W. Jasper, the ceramic engineer, who has recently joined this company. Mr. Oldham was kept busy greeting his friends and telling of the efficiency and economies effected at those plants which have been standardized with Bonnot machines. They also greeted each caller with a most useful gift—a steel, spring tape measure.

G. S. Brubaker, one of the best known machinery salesmen in the country, was present representing his company, H. Brewer & Company, Tecumseh, Mich. Mr. Brubaker has been such a constant attendant at both the National and State conventions of clay-products manufacturers, that he has an exceedingly wide circle of friends who are always glad to see him. Brewer pencils were much sought after.

The Brown Instrument Company, of Philadelphia, had their usual practical display of Brown Electrical Pyrometers and their room was busy from early morning until late at night where a practical demonstration was given



"CLING-SURFACE! Why, I heard of that twenty years ago! Never took much stock in it, George"
"Well, Uncle, I couldn't get along without it"

Back in '96 and '97 when "Uncle" ran an engine, people took more for granted.

For instance: power lost between engine and machines. With shafting true and bearings oiled, they still lost a lot of power because the belts slipped.

Their belts were run tight. When stretched they were taken up again. This caused friction, which ate up coal and kept the shop busy filling oil cups and cooling hot bearings. So between slipping belts and this friction, 5 to 30 per cent. of the power was lost.

Yet no belt, unaided, could run under full load *without* slipping. If the belts were heavy enough, and the pulleys large enough, a good deal of slip was avoided, but larger equipment required more power to move it.

And sticky belt dressings were as harmful then as today. They stopped belt slip for a time, but gummed up both belt and pulley faces; they tore the belts, and often containing rosin or other injurious materials, eventually destroyed them.

It was about this time CLING-SURFACE was discovered. A small beginning: its name did not stare at you in the papers.

Yet CLING-SURFACE soon became well known. People heard of it because it accomplished things.

For tension was doing by *main force* what could better be done by *"persuasion."* And the men behind CLING-SURFACE had found this better way.

CLING-SURFACE stopped the slipping. Since this was the one prime cause for tension, with slipping already stopped why use it at all?

The Cling-Surface Company preached *slack* belts. Manufacturers who tried CLING-SURFACE discovered a great saving. *No take-up was necessary*, there was no slipping, belts lasted longer, and more power was delivered to the machines with less oil, coal, time and money required than when the belts were run tight.

CLING-SURFACE has grown for twenty years because it has kept on accomplishing things. And it will do the same for you.

We have many interesting booklets: one may describe your conditions. Let us send it to you—with the plan 10,000 firms have found successful. All free.

Remember, use CLING-SURFACE and you won't need belt dressings.



Cling-Surface Company

1029 Niagara Street

Buffalo New York

Copyright 1917 by Cling-Surface Co.





The fact that prominent owners in the brick and clay business are daily investing in KisselKar Trucks is CASH-EVIDENCE of Kissel's Supremacy in truck designing and construction.

Our ability to build KisselKar Trucks so they will efficiently and economically solve every haulage and transportation requirement in the brick and clay industry is the logical result of ten successful years in building trucks.

The many Kissel structural innovations and superiorities that insure low operating expense, durability and dependability are designed to overcome the obstacles your transportation department is now contending with.

A postal will bring practical data on KisselKar Truck performance in the service of other owners in the brick and clay business.

Send for it today or see your nearest KisselKar Dealer.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfected worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns

Six sizes—from the 1500 lb. Delivery up. Chassis prices $950 to $3350.

KISSELKAR TRUCKS

of the economies to be gained from the use of their instruments. John P. Goheen, sales manager, and George Keller, advertising manager, were ably assisted by the Service Men, J. W. Anderson, M. J. Looby and Ralph Murray.

With that usual spirit of good fellowship, there was for their scores of friends always a hearty handclasp and friendly smile from J. Howard Chambers, president, and A. R. Root, representative of Chambers Brothers Company, of Philadelphia. Chambers machinery and Chambers Standards have brought this company fame and a wide circle of friends from all parts of the world. Mr. Root was justly proud during the last day of the convention to present his son, Stanley W. Root, who has just returned from service on the Mexican border, during which time he was promoted to a high office in the ranks of the Pennsylvania National Guard.

H. R. Clarage, New York representative of Clarage Fan Company, of Kalamazoo, Mich., was in attendance greeting old friends and making new ones. This company has been making very rapid strides in the clay-products industry on account of the high character of their Multiblade Fans.

E. G. Brick was present telling of the help this company has been to a large number of brick men in almost every clay working section. His company, The Clinton Metallic Paint Company, of Clinton, New York, is one of the best known amongst those supplying colors to the brick trade.

While the Didier-March Company, of Perth Amboy, was not directly represented at Hotel McAlpin, L. A. Witte, of this company was in attendance at the sessions of the American Ceramic Society, where there was great interest displayed in the practical working of this company's kiln. In fact, he was compelled to spend considerable time at the plant in Perth Amboy where a large number of interested brickmakers and engineers called to see the Didier-March Railroad Tunnel Kiln in operation.

The Dunn Wire-Cut-Lug Brick Company, of Conneaut, Ohio, was represented by Frank B. Dunn, William C. Perkins, R. T. Stull and W. T. Blackburn.

J. B. Stoneking was present in the interest of E. I. Du Pont de Nemours & Company, of Wilmington, Del., whose Red Cross Dynamite is so extensively used in almost every clayworking section.

H. J. Wiley, of the Eastern Machinery Company, of New Haven, Conn., had an opportunity to greet scores of users of this company's soft-mud machines, and to hear of the splendid service their product is giving. In the Hudson River district particularly this company's machines are used to a very considerable extent.

The merits of Heraeus Le Chatelier Pyrometers were discussed constantly during the week by R. W. Newcomb, sales manager and A. L. Terry, representative, of Charles Engelhard, of New York City. This company's product has been the means of greatly increasing the efficiency and helping in the upbuilding of many of the largest and most progressive clay plants in the country.

On account of illness amongst the officials of the company, it was unfortunately impossible for any of the "home folks" of the J. D. Fate Company, of Plymouth, Ohio, to attend the convention. This was very greatly regretted by their scores of friends who made constant inquiry about them at "Brick and Clay Record" headquarters. Fortunately a letter had been received at our headquarters, telling of the reason for the company's officials not being present. J. A. Ridgway, the New York representative, was in attendance and had many opportunities to renew old friendships and make new ones.

E. M. Freese & Company, of Galion, Ohio, was represented by B. E. Place, sales manager, E. W. Dow, of Pittsburgh, and R. A. Whiston, of New York. This company made a big hit with their pocket letter holder, which was presented to those calling at their headquarters.

It was fortunate for H. P. Jenks, of Hook Patent Kiln Company, of Columbus, Ohio, that he was so ably assisted by H. L. Longenecker, because their headquarters were



constantly visited by scores of clay-products manufacturers whose interest had been aroused in the fuel saving ability of the Hook Patent Kiln System. In these days of high and constantly rising coal prices, there is an increasing demand for the services of this company.

One of the most interesting rooms at Hotel McAlpin was that occupied by International Clay Machinery Company, of Dayton, Ohio. The first thing that greeted each caller was a "life-size, real, honest-to-goodness" rack dryer car built of steel. As one man said, "it looked as big as the McAlpin," and it puzzled all to know how such a big giant of a car ever got into their parlors. It was surely a clever way to impress upon clay-products manufacturers the high quality of International products. There was also a model shown of the International Continuous Kiln, as well as photographs of every kind of International product—"from pit to car." M. Silverman, general manager, made his initial bow to the clay-products industry. R. H. McElroy, sales manager, was welcomed back by his scores of friends. Geo. A. Anderson was also kept busy acknowledging congratulations, while H. L. Irwin made the fourth member of this company, now known as "International Service." Each caller at this company's rooms was presented with a leather-covered key ring.

The "Lasting Lakewood Line" was ably cared for in a room next door to "Brick and Clay Record" headquarters, by W. A. Meddick, of Lakewood Engineering Company, Cleveland, Ohio. There was constant demand on Mr. Meddick's time, and some of the wise ones, who recognize the merits of Lakewood cars and the desirability of placing orders now, gave him their contracts. "Leave-it-to-Lakewood," has become a well meaning slogan in every clay working section.

So much demand is being made on the time of the Manufacturers Equipment Company, of Dayton, Ohio, particularly as regards the Underwood Producer Gas Burning System, that it was impossible for them to establish headquarters. However, J. C. Harris, of this company, ran up from Philadelphia, where he had been called in his engineering capacity, and he was busy greeting the many friends he found.

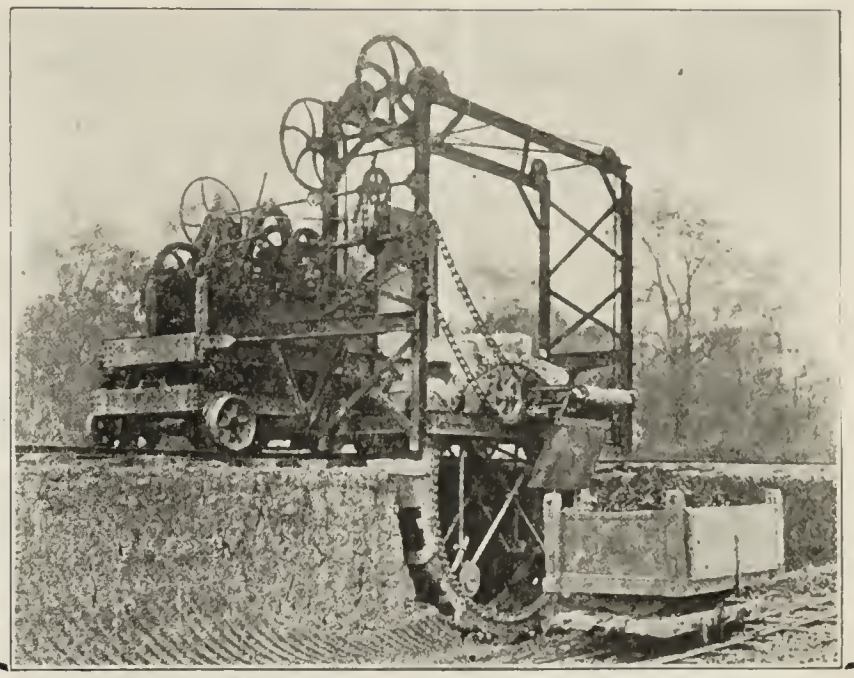
George J. Potts had many opportunities to greet users of the soft-mud brick machines made by his company, C. & A. Potts & Company, of Indianapolis, Ind. George is a particular favorite at every convention just the same as this company's machines are a great favorite in every clayworking section where soft-mud brick are made.

The Roessler & Hasslacher Chemical Company of New York, the best known vendor of chemicals to the clayworking trade, is well represented at every annual gathering. Some of its members always take an active part in the proceedings of the American Ceramic Society and also mingle with the clay-products manufacturers, a large percentage of whom are their special business friends. Among those in attendance at the New York convention were O. W. Will, Werner Malsch, H. Schmidt, Harry W. Smith, and W. L. Brewer.

The Scandinavia Belting Company whose Solid Woven Cotton Belting has become popularly known as the "brick man's belt" was represented by Cyrus S. King of the New York office and E. W. Kingsbury, of the Cleveland branch.

"The Book of Smiles" was in great demand during the week and H. Wirsching was kept busy distributing the latest issue of this happiness producer. His company, The Standard Dry Kiln Company of Indianapolis, is one of the pioneers in the manufacture of dryers for the clayworking industry. Its product is in use in almost every clayworking section of America.

There were countless friends of J. C. Steele & Sons of Statesville, N. C., who were glad to see H. O. & F. F. Steele in attendance at the convention. While this company's product is best known thruout the southern states, their machines are being adopted more every season in other sections too, because of their unusual exclusive designs and high quality. It is always a great pleasure to meet the Steele boys either at home or on the road, because they possess that spirit of southern hospitality that makes one doubly glad to know them.



"The thorough mixture and preparation of the clay is the strongest point of the

Buckeye Traction Digger

"It is away ahead of anything else in this regard."

That's what B. L. Schultz of the Waynesfield Drain Tile Co., of Waynesfield, Ohio, said recently. He made a number of other complimentary remarks, too, because this digger has been such an economy to his company.

He also told of the great saving and satisfaction because of the elimination of hand labor. **One Man** operates the machine—it is easy to run and simple in construction, and does not get out of order like a more complicated machine would.

If you will tell us of the conditions at your plant we'll let you know what we can do for you.

The Buckeye Traction Ditcher Company
Findlay, Ohio



The Veritas Firing System

A new and wonderful system for producing better results in your burning.

By measuring the shrinkage of the Veritas Clay rings in the Veritas instrument, after withdrawing them from the kiln, you obtain an absolute check on your burning procedure.

You Standardize and Systematize Your Firing

In the United States the System is used by over 150 plants, firing off over 1,000 kilns each week.

Altho the System is comparatively new in this country, it has already been adopted and used with great success by many representative firms.

Inquire of The Hydraulic Press Brick Co., Cleveland, Ohio, The Dover Fire Brick Co., Cleveland, Ohio, and many others. We will furnish a list.

We guarantee our System to make time, fuel, and labor-savings while producing uniformly better ware.

The Veritas Firing System Co.

Trenton, N. J.

And Herbert Forester, Box 37, Cleveland, Ohio

Stevenson pans and presses were talked about during the week by C. G. Stevenson and Thomas Hibben, who came on from Wellsville, Ohio, to greet their numerous friends in the industry. They had many opportunities to tell of the splendid year they have had and of the bright prospects for the 1917 season.

Thew Automatic Shovels are in use in the clay-products industry to the extent of nearly four hundred, and naturally their popularity comes from every section where brick and other clay products are made. This company had a booth at the Complete Building Show and their representatives were also mingling amongst the clay-products manufacturers during the week. Those in attendance were H. A. McLaughlin, of the New York office, R. M. Gates, Louis E. Darling, and A. Vogel of the Philadelphia office.

J. K. Blum of the K-B Pulverizer Company, of New York city, was a daily visitor at the convention where he had many opportunities to tell of the crushing qualities of this company's pulverizer. They have had remarkable success in the crushing of all kinds of clay and shale.

Dr. C. B. Thwing, president of Thwing Instrument Company had working instruments to illustrate the advantages of Thwing Pyrometers. This display was near "Brick and Clay Record" headquarters, and the doctor was kept busy from early morning until late at night illustrating the merits of the electrical instruments which bear his name. He was assisted by H. K. Walton and J. H. Torrey of the New York office.

The numerous friends of Wellington Machine Company of Wellington, Ohio, were greeted by Roy C. Bennett of that company. Particular interest was displayed in the improvements which this company has recently made in its already efficient soft-mud machines and rack pipe dryers. Mr. Bennett reported that their plant is filled with new orders and that this promises to be one of the very best years the company has ever had.

Anchor Brand Colors for mortar cement and brick are so well known in the Clay Products Industry as to need no introduction. There were many friends of the company who were exceedingly glad of an opportunity to meet George W. Witman, who came on from the home office of C. K. Williams & Company, at Easton, Pa., for the convention.

The Veritas Firing System has been attracting unusual interest during the past couple of years and it is now being used in more than 150 plants in the United States, and is burning over 1,000 kilns each week. The simple yet efficient working of this system was explained to a constant stream of callers by Herbert Forester the inventor of the system. The company's headquarters are at Trenton, N. J., while Mr. Forester spends a portion of his time at Cleveland. The system for which he stands sponsor is a method for measuring the heat progress made in the kiln, and it is especially appealing because of its simplicity, accuracy, and low cost of installation and operation.

One of the new comers in the industry is the J. B. Owens Continuous Kiln Company of Metuchen, N. J. Both Mr. Owens and C. P. Wood were in attendance, and they had many opportunities to tell of the wonderfully efficient work their kiln is doing at their plant. It is operated by gas, oil or coal, and has made some big cuts in fuel, and labor cost. Some of the delegates were arranging to visit the plant to see the kiln in actual operation.

The Proctor Dryer has established itself as so important a factor in the efficient manufacture of all kinds of clay-products that its engineers' services are in constant demand in every section of the country. Naturally there was great interest displayed in this dryer during the week, and the headquarters of the manufacturer—Philadelphia Textile Machinery Company—were well filled all day long. E. B. Ayres, R. O. Keiser and Harold Copping were the busy representatives who had many an opportunity to tell of the wonderful accomplishments of the Proctor Dryer in the clay products industry.



The EDITOR'S CORNER

Stand Behind the President!

THE CALL has gone forth for an extra session of Congress to convene at noon on Monday, April 2. There is little doubt in the minds of those who have been following the trend of recent events but that the first matter of business to be considered at this session will be our relations with Germany. War at this writing seems inevitable. The Teutons have left nothing undone to signify their belligerent attitude toward America, and now it is apparent that we must take up arms to protect our commerce and the lives of those of our citizens who travel on our ships.

This is, however, no time to become frightened. The apprehensive individual is utterly useless in any crisis and so it behooves each and all of us remain as calm as is physically and mentally possible, and to use our intelligence in viewing the situation and in whatever action we may take.

CAN WAR DAMAGE CLAYWORKING?

As was set forth in the February 13 issue, we do not believe that war with Germany will materially affect the clayworking industry. In fact, the position was taken in that issue that there is a possibility of war stimulating the demand for clay products to some extent.

Apprehension has no place in the mind of any business man today. *Action* is wanted. On the fourth day of this month, in the year of our Lord 1917, Woodrow Wilson became president of the United States for the second time, and in that position is not the victorious chieftain of the Democratic party but is the leader of the American people. Please do not forget that. This is not a time for the parading of party differences. As citizens of the United States we owe it to our country to stand behind the president regardless of party affiliations.

How can *we* stand behind the president?

The Refractories Manufacturers Association has set a splendid example in this regard, details of which are given on another page of this magazine. It is hard to prophesy just at this writing what opportunities will be presented to the manufacturers of building brick, paving brick, hollow building tile and other clay products, but if an opportunity, similar to that which presented itself to the refractories manufacturers, knocks upon your door, you should be prepared to *stand behind the president.*

* * *

Building Brick with An Association Trade Mark Nationally Advertised. Why Not?

"WHEN It Rains It Pours." Who can read these words without having the picture brought to mind of a little girl holding a big umbrella over her head and a carton of salt under her arm that is fast discharging its contents upon the ground? And who can long center his thought upon this figure without remembering Morton's salt? "Old Man Mileage" is inseparably associated with the Republic Tire Company's product, as is also the smiling Indian with "Skookum" apples.

We have some trade marks in the clayworking industry that are familiar to the building public as well as to the contractor and architect. "Tapestry" is known the nation over as designating a particular face brick. The building brick equipped with wings above which rise the slogan "Buy Farr the Best," is one of the cleverest identification marks that has ever been designed for a clay product. These are all trade marks of individual enterprises. The value of the trade mark is without question in progressive merchandising circles. No one can deny the wonderful record that some of these characters have made when illumined by printer's ink.

SOMETHING NEW

But an associational trade mark is something different. It is an innovation. Manufacturers in lines other than clayworking, knowing of the value of the trade mark in marketing a product, have seized upon the idea of getting together and stamping their products, which measure up to a certain common standard, and advertising them nationally with a combined fund, thus putting before the public a product that commands attention.

Only recently, in fact, on March 1, a group of manufacturers producing a like product, namely, the Southern Cypress Manufacturers' Association, began the national advertising of trade-marked cypress, asking the consumer to specify trade-marked cypress when purchasing his goods of the retailer. This is progress. The success of this movement can hardly fail of achievement, for in it we have a group of business men pooling their resources to market a common product in a way that the twentieth century has demonstrated is productive of success.

The natural conclusion to one who is interested in the manufacture of clay products is, *why cannot we do the same thing?* We can. In the building brick branch of the business, for instance, such a movement would be perfectly possible and productive of results in the way of a larger demand and bigger profits, such as has never been dreamed of.

MUST REALIZE NEED

In order to bring such an event to pass, the building brick manufacturer must realize his need for such a movement. Association work among brick manufacturers will never amount to anything while the support of such organizations has the air of patronage. The only excuse for the existence of a trade association is its ability to improve conditions in the business in which it operates. If it does not do this, it would save its members money by "giving up the ghost."

The national advertising of building brick, trade marked by an association, is not a fantasy. It is an inspiring possibility. Building brick needs an organization to do just this thing for it. Manufacturers of building brick for their own financial interest need such an association. What is standing in the way? Nothing but our own inertia. Let us get together and put building brick on the map along with cypress and other competitive materials whose manufacturers have been busy, lo these many years, telling the public how good their product is and taking measures to see that the public gets the advertised product asked for.

* * *

Do You Have Your Finger on Your Costs?

AN ADEQUATE COST SYSTEM is a valuable asset these days. "Brick and Clay Record" has just finished publishing one that is practical and complete and which can be had for the taking. Help yourself.

The NEW GENERAL MANAGER GETS *a* BUMP

While a Course in the "University of Hard Knocks" is Rather Painful, Its Lessons Are Seldom Forgotten

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company, Uniontown, Pa.

¶ *The presentation of perplexing executive problems and their discussion in story form describes, in a few words, this, the first of a series of articles to appear in "Brick and Clay Record."*

¶ *The industry is to be congratulated upon having a man like Mr. Greenwood who can bring home to us in so attractive and readable a manner important business truths.*

¶ *These articles are a decidedly valuable addition to the literature of our trade and we know that if the first of this series is carefully read, the remaining stories will be looked for eagerly and consumed with enjoyment and profit.—THE EDITOR.*

HE HAD RECENTLY BEEN INSTALLED as general manager and was finding his duties rather novel. Of course, he had known all along of the many reports constantly coming into the hands of that official, of the questions referred to him for his final decision, and something of the responsibility resting upon his shoulders in outlining various policies of the company with regard to improvements, sales agencies, extension of markets, and other large questions, but the change from superintendent of one of the plants to the chair of general manager found him with much to learn about the duties of his new position.

PROFIT REPORTS PROVE EYE-OPENERS

There had just been placed upon his desk from the accounting department a report covering several neatly typewritten pages, showing the profits of each plant for the past three months. The first plant showed a gain of $20,000. The second only $10,000. The next was his own former plant, covering a period while he was still in charge, and it showed a bare profit of $2,000. He rubbed his eyes and then looked again at the two previous reports to make sure he had read them aright. Yes, there it was, twenty, and ten, and two. He had worked so hard that last quarter—the output had been increased, his plant records indicated that there had been greater efficiency, and he had indeed attributed his promotion to the results which he felt he had been attaining. And now to find his plant had fallen so far short of the other two. And to think that during the period covered by the report the first plant had not even run full, and that he had been looking forward in his new position to bringing it up to the same efficient standard that his own plant had attained. What could he say at the next directors' meeting in case these reports were called for and were discussed? Perhaps he could resign and go back to superintendent of one of the plants. Only, in the light of these reports they might not want him as superintendent of any of the plants.

Then he began to wonder how long he had been making such an unfavorable showing. Having called for the reports of the previous quarter, he found that the first plant had shown a profit of only $5,000, the second $6,000, while his plant had shown up with a profit of $15,000. It was all plain to him now. He had been promoted upon the showing of the second quarter, before the directors had a chance to find what a poor showing he had made during the third quarter. But they would soon find their mistake.

His family, which had seen so little of him during his struggles at the plant, had been so delighted at his advancement. Their disappointment would be more keen than his own. He just couldn't let them know that after all he had been a failure.

FROM THE FRYING PAN INTO THE FIRE

Wearily, he turned to another report covering the sales for the previous month. Here at any rate he would find some grounds for encouragement, judging from the enthusiastic reports he had been receiving verbally from the salesmanager. For the previous month the average price had been $18.75 per thousand brick. And now for the month just ended the average base price was $19.25. There was a large increase in the amount of brick sold, but less than three per cent. increase in the base selling price, instead of an increase of from ten to twenty per cent. as the salesmanager had claimed all along they were receiving. Was it possible that the fates had it in for him from every standpoint?

In this case, at any rate, he was not so directly responsible. How would it do to send for the salesmanager and confront him with the report so at variance with his prophecies? Or was there possibly some error in the accounting methods? He would consult Barnes, the head of the accounting department, and who would not be

interested in individual responsibility but would take a detached view of the case. Then he would be better armed in taking up the subject with the sales department. Yes, he would first go into the question with Barnes, in whom he had learned to repose confidence during his career as a superintendent.

BARNES EXPLAINS

"Mr. Barnes, here is something which puzzles me. The sales department has been telling me that they were getting considerably more money for the brick sold last month than during the month before. Yet the average selling price is but little more than it was the month before. Now can you tell me which is correct?"

"Sure. Both statements are correct. You see, there is nothing so deceptive as averages. A man once started to wade across a stream whose average depth was four feet, and he was drowned.

"Where there are several different products sold, the price of every single product may advance, and yet the average price at the same time may go down. On the other hand, the price of each kind of brick may go down, and the average for the month at the same time go up."

"Mr. Barnes, I know that you are always careful in your statements, but in this case I am all at sea. In this question of averages, I am like the man who, you say, attempted to ford the stream. I am getting in over my head. How can every price go up and the average go down? It seems to me like the statement of the man who claimed he always exceeded his average but never fell below it."

A CONCRETE EXAMPLE

"Let us make up a simple example to show how this can happen, and that averages may point in exactly the wrong direction. Using simple figures for the sake of illustration, let us suppose that the sales for July are:-

5,000 No. 1 brick @ $20.00 per M.....$100.00



He Just Couldn't Let Them Know That After All He Had Been a Failure

1,000 No. 2 brick @ 14.00 per M..... 14.00
6,000 brick sell for..... 114.00
Average per thousand..... 19.00

"Then suppose August sales are as follows:

1,000 No. 1 brick @ $25.00 per M.....$25.00



"Mr. Barnes, I Know That You Are Always Careful in Your Statements, But in This Case I am All at Sea."

5,000 No. 2 brick @ 16.00 per M..... 80.00
6,000 brick sell for.....105.00
Average per thousand..... 17.50

"Here you see the price of first quality brick goes up $5 per thousand, the price of second quality brick goes up $2 per thousand, and still the average for the month goes down $1.50 per thousand."

"Well, that's a new one on me. But surely we should have some reliable basis on which to work, and if the averages are as a rule misleading, and as a general thing deviate widely from the truth, what is the remedy? Is there not some reliable chart to steer by?"

THE REMEDIAL DOOR IS OPENED

"There is. In fact, the dumping together of sales and taking the average for the month is not only inaccurate, but no sales policies can be built upon the result. I have given the subject quite a little thought but heretofore I have not received any encouragement from the management. They seemingly did not appreciate the importance of the work."

"Well, Mr. Barnes, from the examples you have cited it looks to me as tho some change should be made and if you will prepare your plan we will go over it together with a view to its adoption."

(In Next Issue: The General Manager Learns About Sales Reports.)

* * *

Big Registration in Sales Ethics Contest

Do face brick salesmen believe in good sales ethics and are they willing that these should see the light of day? Does more than fifty registrations in "Brick and Clay Record's" Sales Ethics Competition look like it? The same answer applies to both questions. Figure it out for yourself.

Since the initial announcement of this contest for prizes to be awarded for the best papers on paragraph four of the American Face Brick Association's code of ethics which appeared in the February 13 issue, we have been constantly in receipt of inquiries for further information and letters stating that the writers were interested

in this movement to promote a wider discussion of sales ethics in the face brick business and would submit a paper in the contest.

The registrations run the gamut from the "boss" thru the salesmanagers to the newest recruit on the force. Some of the names match those borne by the shining lights in the business and our advice to all contestants is that they take up a "notch" and bend every effort to produce a paper of high quality.

Only two weeks remain from now until the closing date of the contest so it will be necessary, if you are a contestant and you have not started upon the preparation of your paper, that you do so at once in order to get it in on time. This important matter should not be neglected.

Martinsville Plant Manufactures New Product

After a shut-down of five weeks, during which time it made repairs and improvements to its plant which cost about $10,000, the Martinsville (Ind.) Brick Company again resumed operations during the week of March 11. Important among the changes which were made was the installation of a reciprocating automatic brick cutting machine with a capacity of 150,000 brick a day. New elevators have also been installed, and to take the place of frame structures that have heretofore been used on some parts of the plant, substantial brick buildings have been erected.

The main purpose in installing the automatic brick cutting machine was to enable the Martinsville company to manufacture wire-cut-lug paving brick. However, the company by no means intends to discontinue making its matt-texture face brick known as the "Rustique Oriental," the first of which it placed upon the market fifteen years ago.

As guests of the company, the county commissioners, city councilmen and other local men interested in the manufacture of paving brick were taken on a tour of inspection thru the plant, Monday, March 5.

Clay Products Displayed at Lumbermen's Meet

At least one exhibit of burned clay products was maintained at the recent convention of the Southwest Lum-



Display of the W. S. Dickey Company, Kansas City, Mo., at the Recent Convention of the Southwest Lumbermen's Association in That City

bermen's Association, held at Kansas City, Mo. Due to a lack of display room at the convention headquarters many of the companies' plans for an exhibit of the materials which they carry, were frustrated, the W. S. Dickey Clay Manufacturing Company being the only concern that found available space in which to display burned clay goods.

The one vacant room at the Hotel Muehlebach was utilized for this purpose, where, under the direction of George H. Tefft, salesmanager of the company, A. F. Killick, advertising and publicity manager, and D. C. Stophlet, the Dickey company featured its new glazed building tile, which it markets exclusively thru dealers. The display in the room, which is shown in the accompanying picture, is built partially of hollow building tile and shows ventilation systems for barns and other farm buildings, besides calling attention to the use of the company's product in septic tanks.

Hollow Tile Makers to Hold Monthly Meetings

At the meeting of the Hollow Building Tile Manufacturers Association of America which was held in New York on March 8, there was a good representation of manufacturers from over a large part of the United States and Canada. Much enthusiasm was shown by all present and it was evident from the interest exhibited that an organization to promote the use of hollow tile and to carry on an educational campaign was recognized as a necessity by every manufacturer present.

At this meeting it was decided that local organizations should be kept together and should be closely affiliated with the national body. Monthly meetings of the national organization will be held at which some one or more members of each local group will be present.

Three of these meetings each year will be held in eastern territory, three in Ohio, three in Illinois and three meetings to be arranged for during the year at points where the association may decide the most good can be accomplished. One meeting each year will be the annual gathering. This will be held or arranged for at some central or convenient point for all of the members.

H. C. Downer, vice president and general manager of the Malvern (Ohio) Fire Clay Company, was elected president of the association for 1917; H. M. Keasbey, J. B. Whitacre, E. R. Sturdevant, B. C. Keeler and G. A. German, vice presidents.

The next meeting of the association will be held at the Statler Hotel in Cleveland, Ohio, Wednesday, March 28, at which time the first matter for consideration will be the securing of a paid secretary. All manufacturers of hollow building tile are, therefore, strongly urged to be present.

Chicago Men Buy Union Furnace (Ohio) Plant

The plant of the Columbus Brick and Terra Cotta Company located at Union Furnace, Ohio, which has been idle for some time, has been leased to L. D. Binyon and James S. Hogan of the S. S. Kimbell Brick Company, 304 Chamber of Commerce Building, Chicago, Ill., who will operate it under the name of the Union Furnace Brick Company. The plant is one of the largest in the Hocking Valley and its product is known far and wide. For the present the output will be devoted to fire brick, the S. S. Kimbell Brick Company having taken a large contract which will consume the entire production for several months. The operating offices will be located in Chicago. Ben Fisher, formerly with the Columbus company, will be factory superintendent.

FIRE BRICK MAKERS

OFFER *to* AID GOVERNMENT

Association Votes to Give "Uncle Sam's" Orders Preference As Part of Movement to Strengthen National Defense

IN LINE with action taken by Henry Ford, the principal American copper producers and other individuals or groups of individuals offering to assist the government in the work of strengthening the national defense, the Refractories Manufacturers Association, at its annual meeting held on March 8 and 9 at the Congress Hotel, Chicago, adopted a resolution pledging the support of the individual members of the association to the United States government and guaranteeing preference and precedence to federal work and to the requirements of manufacturers now engaged or who may hereafter be engaged in supplying the government with the materials which it may require in any crisis.



PORTER S. KIER
President, Refractories Manufacturers' Association

In view of the fact that the production of refractory materials of all kinds is oversold for from two to six months, this action on the part of the association lets down the bars, as it were, and will doubtless constitute an important factor in speeding up the work at all of the government arsenals and navy yards, as well as privately owned munitions plants and ship building establishments.

ONE CAUSE FOR THE SHORTAGE OF FIRE BRICK

One of the prominent causes of the shortage of fire brick has been the immense amount of by-product coke oven construction which was given an impetus at the very beginning of the European war by the shortage of dye stuffs and other chemicals. Coal tar dyes and a host of other valuable commodities are coke oven by-products, which, when coke was manufactured in the old beehive coke ovens, were dissipated in the atmosphere. These beehive ovens are fast being replaced with various new models of by-product ovens and this construction alone has taxed producers of silica brick to the utmost, as well as creating an enormous additional demand upon the manufacturers of fire clay fire brick.

The Refractories Manufacturers Association, whose offices are at 220 South Michigan Avenue, Chicago, has sixty-two members with a combined annual capacity of about nine hundred million nine-inch equivalent. Estimating the average price at forty dollars per thousand, f. o. b. cars the works, the value of the annual output, as indicated by this capacity, is thirty-six million dollars. The association has, with the aid of the Federal Trade Commission, effected a uniform cost accounting system, which has been adopted by the greater part of its membership. It is stated that the scale of wages paid the men employed in various plants represented in the membership is from fifteen to twenty per cent. higher than that paid for the same kind of labor in any other branch of the clayworking industry.

WELFARE WORK RECEIVING MUCH ATTENTION

Welfare work, including the installation of service buildings for employes, and in some instances, welfare buildings, such as workingmen's club houses, and so forth, is being strenuously pushed. Many of the plants have bought baseball uniforms and equipment for "nines," made up of their employes, and inter-plant schedules are being arranged for the coming season. One plant has equipped a brass band which it is expected will travel with its baseball team from town to town.

Fire prevention is one of the hobbies of the Refractories Manufacturers Association, and great stress is being laid upon the advisability of insuring against fire before insuring against fire loss.

A great deal of progress has been made during the past year in standardizing the various shapes of fire brick required by the gas industry and this movement is being extended to include the shapes commonly used in the cement, lime and malleable industries.

OFFICERS FOR NINETEEN-SEVENTEEN

The following officers were elected for 1917:

President: Porter S. Kier, Kier Fire Brick Company, Pittsburgh, Pa.

Vice President: E. M. Allen, American Refractories Company, Chicago, Ill.

Treasurer: John H. Cavender, Chicago Retort and Fire Brick Co., Chicago, Ill. (re-elected).

Frederic W. Donahoe was retained as association secretary. Richard D. Hatton of the Laclede-Christy Clay Products Company, St. Louis, Mo., was elected to a position on the executive committee in recognition of his valuable services to the association which he has served as president since 1914.

The next meeting of the association will be held in Pittsburgh on April 27.

* * *

Ohio Bricklayers Show Commendable Spirit

An excellent example in the matter of co-operation between those interested in brick and other clay products is seen in a recent announcement by the Ohio State Conference of the Bricklayers, Masons and Plasterers International Union, with headquarters in Cleveland, Ohio, which places this organization on record as furthering the use of brick.

In a letter to contractors, builders and persons planning homes to be built this spring, the merits of brick are outlined. The distribution of this information is the result of co-operation between the international union officials and the officers of the Society Advocating Fire Elimination. The movement is not confined to Cleveland alone, but is being extended thruout the state of Ohio. To further the movement, the union has taken liberal space in the Akron Complete Building Show.

Significant facts brought out by this announcement are, that while a brick house costs comparatively little more than a frame house, the upkeep cost of the latter is a matter for serious consideration, as it extends over a lifetime, increasing each year as the house grows older. Figures are shown bringing out the point that it costs thirty-five to fifty per cent. more to heat a frame house than a brick house. It is shown that a brick house is cooler in summer and warmer in winter, that it costs one-third more to insure a frame house than it does a brick house, that frame houses, especially when built close together, are not only in danger from fire from within, but from flames from without.

Still more important facts are brought out in this movement, not the least of these being that more money can be borrowed on a brick house than upon a frame dwelling, because bankers consider the depreciation on a brick residence is less than that on a frame house. Figures showing the contrast between the costs of painting and repairs caused by weather and rain, uncertainty of construction, and other bad features of frame construction, against their absence in the brick house, as well as the fact that the brick house costs perhaps not more than ten per cent. additional to build, while it can be sold for a good deal more at the end of five years, seem to prove conclusively that the brick house is the coming residence for the people of Ohio, and the bricklayers' union is doing something to stimulate interest in that construction.

* * *

Business Agents Tie Up Cleveland Building

Altho a strong movement for peace is being made by the Building Trades Employers' Association and the Building Trades Council of Cleveland, Ohio, to settle the differences between the workingmen and the employing contractors, at this writing both sides are as far apart as they were on March 1, when a lockout of union hodcarriers, as well as common and building laborers, was declared. How seriously this situation may affect the brick and allied building materials industries is best seen in the statement that work has stopped on 345 jobs valued at more than $10,000 each, and 1,200 jobs worth less than $10,000 each, making a total of nearly $20,000,000 in building projects standing still.

Tired of being dictated to by the leaders of those whom they employ and weary of violations of working agreements, the employers have made a statement of all the facts in the case to the trade and the public. The employers show that they made agreements with the Building Trades Council on May 1, 1915, and offered to recognize the hodcarriers and common and building laborers' union, altho prior to that time the employers had been operating upon an open-shop basis. They point out that this branch of building unionism has scarcely been recognized in any other city but Cleveland.

Not a single agreement had been broken, the employers show, until an official of the Building Trades Council announced that all agreements between employers and local unions must be contingent upon the will of the council, to be abrogated by order of the council whenever action should be deemed expedient.

The employers show that this official is quoted in part as saying:

"The Building Trades Council has decided to insist upon a section in all agreements between locals and employers giving the men the right to strike at any time when the entire council votes for a strike * * * "

Strikes have been called upon various pretexts in at least eight instances since December 1, 1916, work being abruptly stopped. A specific instance is cited, among others, showing that work has been suspended on a building being erected by the Reaugh Construction Company, altho this firm, a member of the employers' association, has always been fair to union labor. This action is believed to be based upon the fact that the company to occupy the building has been approached by the union faction with a view toward compelling it to unionize its shop in response to a demand from the sheet metal workers' union. This belief seems to be further strengthened by the fact that the official previously mentioned has been quoted as saying that in the future the members of the council will not help erect buildings to be occupied by firms or individuals not approved by union labor.

As further proof that the employers want peace and are willing to help get it, they have proposed certain leaders of labor and business as mediators in the present controversy, but the plan for mediation has been turned down flat by the union chiefs.

The employers have gone on record as believing that the workingmen heeded the call of business agents, blinded by the possibility of self-aggrandizement, who have obscured the real issues, whereas the enlightened among the workingmen who will heed justice will recognize the points at issue.

Meanwhile Cleveland's growth seems about to be throttled by the will of a business agents' combination.

* * *

Crucible Operations Being Pushed

The Crucible Company of New Jersey has opened offices in the Raritan Building, Perth Amboy, and is pushing crucible operations in connection with the clay products industry in the Raritan River District. Operations on a small scale are being conducted at the plant of the Atlantic Terra Cotta Company by Lawson Ramsey, John W. Olsen and A. Crowell. The work is in an experimental stage, but, according to reports, has a great future. The crucibles find a ready market in the steel industry, but manufacturing conditions have proved somewhat of a handicap.

WINTER GRINDING *and* SCREENING

¶ *In presenting the following article by a well known clay plant executive and frequent contributor to these columns, the Editor is fully conscious of the possible criticism that this paper would be more timely along about October or November.*

¶ *It should be remembered, however, that the best time to offer healing balm is just after a man has been burned.*

¶ *If those who have had trouble in the grinding and screening departments this past winter will read the following article they will find its suggestions far more refreshing than they would later, and will, we believe, make plans between now and next fall to get ready for the difficulties of cold weather.*

Ideas on a Subject of Wide Interest, Gained Where the Frost King Labors Long and Hard

By Ernest W. Knapp

Superintendent, Sun Brick Company, Toronto, Ont.

NEXT to the trials and tribulations of the clay bank and shale pit, with attendant slides, soaking snows, frozen tracks, hard running cars, frozen steam lines, and general misery, comes that great affliction of grinding, elevating and screening on the zero days of a winter's operation in Canada.

To the superintendent with an expensive storage shed, steam heated, and equipped with an equally expensive conveying system, this does not apply. He is a lucky individual who needs no sympathy; nor does the man who maintains additional grinding equipment—spare units that are used only in emergencies and which lie idle most of the time. But the poor fellow who must work with ordinary equipment under severe weather conditions has no "snap."

The author does not wish to imply by the above that a storage shed is not a good investment and a dividend payer, but we do question the advisability of attempting to heat a huge mass of raw material in a structure that must of necessity be subjected to constant opening of large doors in zero weather, as opposed to the efficient handling of freshly gathered material from the pit, mixed with dry material pulled out of a pile in storage, which even tho not heated, will only be frozen slightly on the outside, provided it has been put in under a roof when in a dry state.

WHEN A STORAGE SHED IS A GOOD INVESTMENT

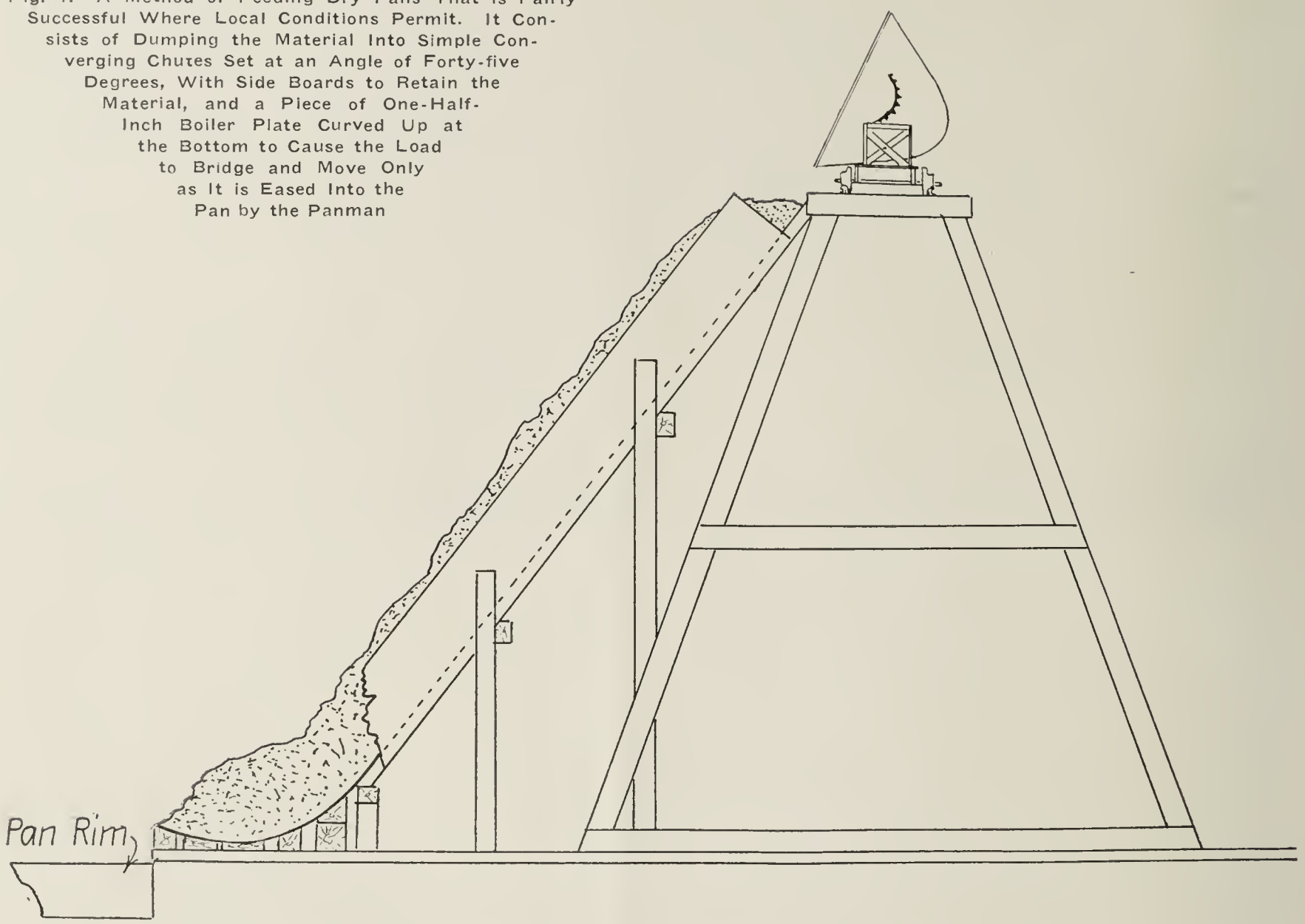
The question of spending money for a storage shed depends entirely on whether the yearly gain in tonnage, made possible by this addition, will make it pay. A number of factors must be taken into consideration to determine how much to spend or how large a shed to build. It always pays to have some sort of a storage, even tho it be but a shed roof made to cover an hour's run during a thunder storm.

The capacity of the kilns and dryers must be taken into account as compared to the capacity of the factory and shale pit. With a large balance in favor of the latter a large shed will not be necessary under normal conditions. The volume of continuous carload shipments with the possibility of loading all ware from kiln to car during rain and bad weather must be taken into account. It would not pay to build a shed to hold ten thousand tons of raw material when the factory would be continually shut down for lack of kiln room. It has been the writer's experience that shale pit labor will generally "stick out" a day thru bad weather when the loaders and wheelers refuse to work. The shale pit laborer has a pair of boots that stand the wet and a heavy coat, while most wheelers' shoes are thin and leaky. With a possibility of kiln to car shipments day after day, and the kind of railroad service that we dream of and expect, but never get, such a shed might pay.

A storage of raw material acts as a reserve in case of a breakdown at the pit. Should this utility be the governing factor the shed must be large enough to run the plant thru any possible period of repair at the pit. It likewise gives a factor of elasticity between pit and factory to promote steady pan feeding and to absorb temporary halts such as derailed cars, removal of waste material and tracks preparatory to blasts, giving the pit foreman a better chance to plan and operate, since he can pile in material irrespective of the quantity being consumed by the pans.

To make a storage shed pay it must be used, not merely filled up and and held in readiness for a great emergency. Every wet or cold day, every winter morning, to get that flying start so necessary for a big day's run, the storage must be dug into and some of its contents crowded into ware. On all dry and warm days when extra labor is available, an effort should be made to pile raw material

Fig. 1. A Method of Feeding Dry Pans That is Fairly Successful Where Local Conditions Permit. It Consists of Dumping the Material Into Simple Converging Chutes Set at an Angle of Forty-five Degrees, With Side Boards to Retain the Material, and a Piece of One-Half-Inch Boiler Plate Curved Up at the Bottom to Cause the Load to Bridge and Move Only as It is Eased Into the Pan by the Panman



into the shed, spread that occasional wet load that would slow up the pans over the dry stuff, and you will pay the cost of that shed in a single month's operation during bad weather.

THE IMPORTANCE OF DRY PAN FEEDING METHODS

The efficiency of a dry pan as a dust creator depends to a great extent on the system of feeding followed. Most pans can be made to grind more than at present, provided the material is reduced to small pieces, fed steadily and evenly, and judgment is used with wet, sticky masses. The man feeding the pan should have some intelligence to do this work properly, and to get all possible material thru, maintain the correct mixture when clays and shales are combined, and to prevent over-

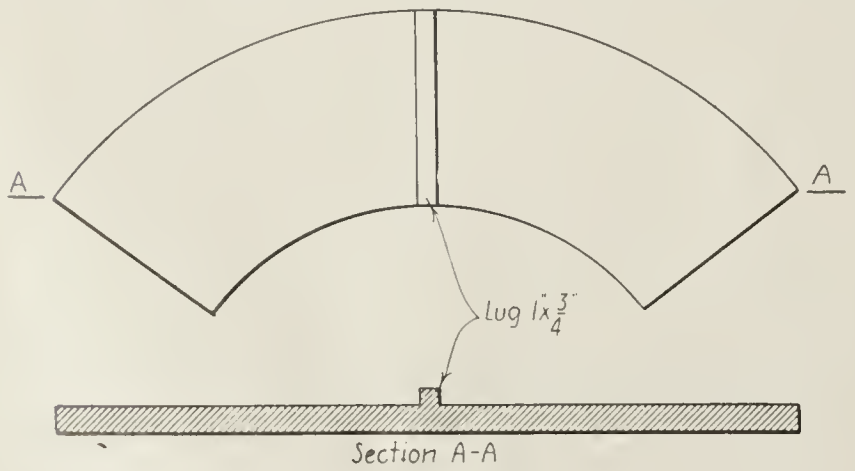


Fig. 2. A Radial Lug Cast in Grinding Plates to Prevent "Skating" of Frozen Lumps of Shale

loading, accidents, gummed screen plates, and undue vibration. It has been very hard, especially during the continuation of the war, to find a man with these requirements, who is also a regular "bear cat" with a shovel. Hence, a system of feeding the pan must be devised that will make the work less strenuous and induce a laborer of fair intelligence to stick to the job.

There are a number of good systems in use that answer these requirements. Some plants use conveyors to feed the pans and pull or shovel the shale and clay onto the belts. This enables the panman to cover a large area of stored material, but involves a repair cost and upkeep on the conveyors, power to drive them, and keeps the panman away from the pan where overloading or underfeeding is liable to take place. He is also prevented from being at the clutch lever in case of a smash up. The screen plates may become coated over before he is aware of it and a shut down is required to clean them off again. Wet clay or shale will start to build, raise the most rigid scrapers yet devised, and overload a pan in a few moments, if not caught in time and prevented. The proper place for a panman is within a few feet of the rim and a step or two of the clutch lever. On wet or stormy winter days, it is good diplomacy to give the shale pit gang an inside job. It gives the impression to men that they have steady work and makes possible full capacity operations on many spring days when it will rain down in torrents for a few hours in the morning, then clear up and remain fine all day. They come to work because they can work inside, and the best place to employ them is in the storage shed, where the good old-fashioned wheel barrow has the conveyor system backed off the boards for efficiency, upkeep, low initial cost, and the ability to be ever ready at a moment's notice.

Another system consists of dumping the material into hoppers and feeding the pans from chutes with levered

doors. These are theoretically great labor savers, but in actual practice the difficulties attendant upon jammed doors, slides of a ton or so of raw material into the pan, and the accompanying delay or smash up renders them a nuisance.

A method that is fairly successful where local conditions permit consists of dumping the material into simple converging chutes set at an angle of forty-five degrees, with side boards to retain the material, and a piece of one-half-inch boiler plate curved up at the bottom to cause the load to bridge and move only as it is eased into the pan by the panman.

These may be erected to any height suitable to hoist levels, etc., and permit a capacity in some installations of approximately five hundred tons. See Fig. 1.

To feed the pan, a man must shove or ease the material in. The piece of boiler plate may be curved and packed up at the bottom sufficiently to prevent any lumps from sliding down into the pan when a car is dumped, while the weight of the mass in the chute tends to keep shoving and aids him in moving it into the pan. There is no lifting of countless shovels full of clay and shale all day, and the tiresome walking forwards and back again is eliminated, making the most fatiguing job on the plant a desirous and easy task. The device in question also tends to promote a steady, even feeding, keeping the pan full at all times, with the mullers well cushioned.

In the winter, shale and clay do many mysterious and aggravating things to a dry pan. A frozen piece will skate around, dodge the mullers, cause them to stand still and slide, and if wet, will freeze and stick fast to the screen plates, setting like concrete in a few moments. Radial lugs, one inch by three-quarter inch, cast in the grinding plates will prevent the skating and drag the piece under the muller. (Fig. 2.)

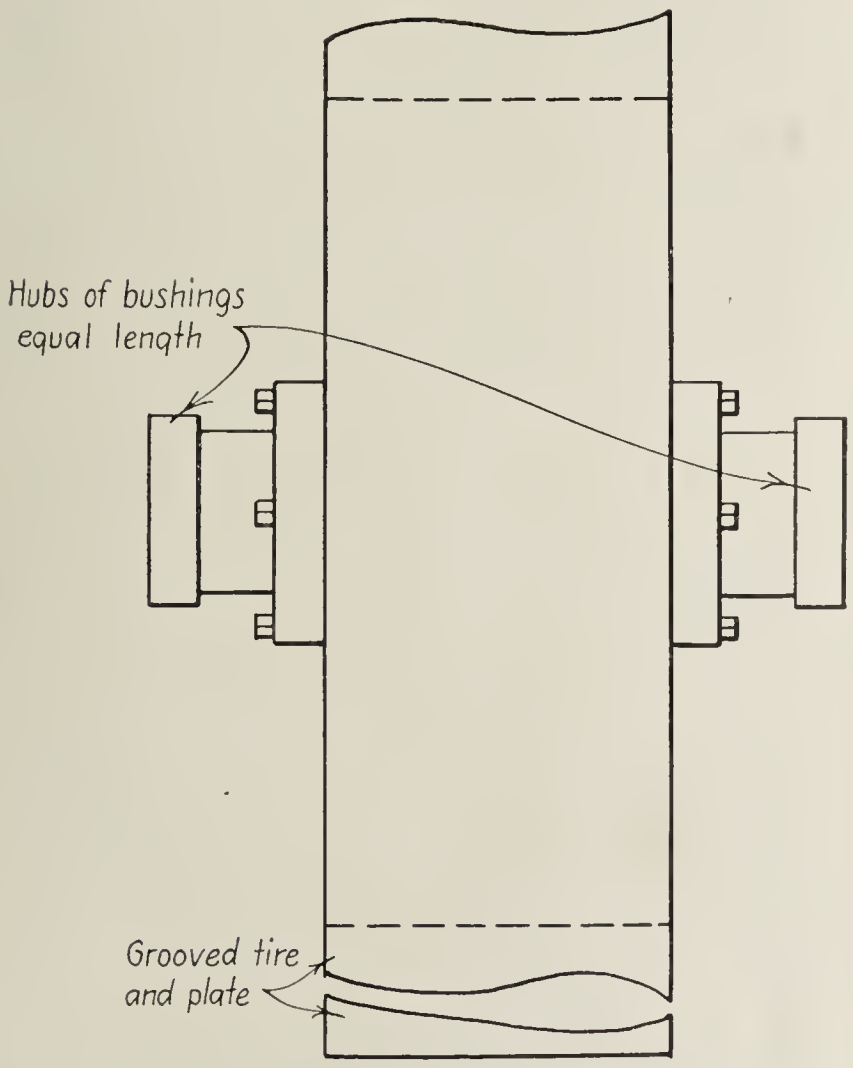


Fig. 3. A Grooved Muller Tire, Rolling on a Grooved Grinding Plate, Has Surface Contact of About One-Half of Its Original State

MULLER SHAFTS AND BUSHINGS MUST BE WATCHED

The condition of the shafts and bushings in mullers must be carefully watched. They should not be allowed to wear sufficiently to cause even a slight cant to a muller. It wears the tires unevenly as well as the grinding plates, and reduces the efficiency of the pan greatly. In the purchase of a dry pan this is an important item to consider, that the muller bushings may be quickly and conveniently changed, and that the projections or hubs of the bushings are equal on both sides of each muller, so that the muller may be reversed every three months by simply slipping out the shaft and turning the big wheel around. Unless this is provided for, the muller reversals are generally put off until a more convenient time, as for instance, a shut-down of lengthy duration, but then the tires have become worn on one side and badly grooved. A grooved muller tire, rolling on a grooved grinding plate, has surface contact of about one-half of its original state. This directly cuts down the grinding efficiency of a pan fifty per cent., and is caused both by poorly fitting shafts and bushings, and because the mullers have not been reversed at three-month intervals or less. This fact would not be of great consequence on soft shale or fire clay, but particularly applies to those hard shales that put the dry pan on the repair list. See Fig. 3.

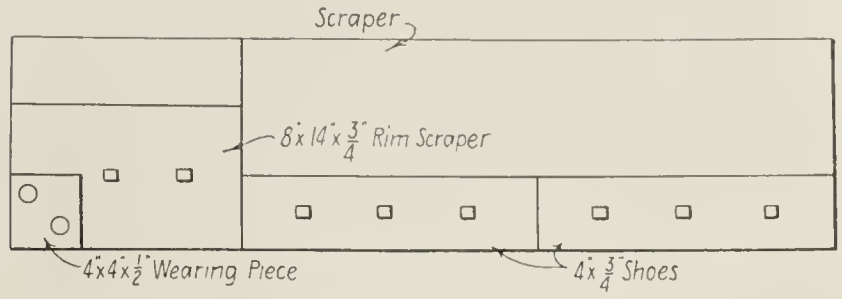


Fig. 4. A Scraper Designed for Maximum Winter Service

A CONSIDERATION FAVORABLE TO STORAGE SHED

If the material being ground is of such nature to permit, worn or coarse screen plates can be used in wet weather or in winter to facilitate the grinding, but on a hard shale it will be found necessary to keep the plates renewed often with as fine a mesh as possible to avoid accidents to dies and machinery, especially when the material is in a frosty state, in which condition it will not take up water until heated by the friction in the barrel and it comes thru the die like a piece of cast iron. This, again, increases the difficulty of grinding, and because of the necessity for keeping scrapers with sharp, square edges from rubbing tight against the plates, it raises the purchases of material to a staggering figure each month. This is a factor worth considering in regard to the economy of a large storage shed. Grinding shale and clay direct from the quarry in cold weather will require daily renewals of scraper points and edges. Pieces of steel that would last two weeks in ordinary service on material without frost, will be worn out in one day on frozen shale or clay. At the present price of steel this amounts to a sum that, in a couple of months, would almost erect a large storage shed, the size being in direct proportion to the number of pans in use.

SCRAPER DETAILS THAT NEED ATTENTION

The design of the large scrapers, delivery, method of fastening to bar, and so forth, are details of utmost importance. The scraper must be sufficiently long to give a gradual easy sweep from rim to muller; it should be fastened with a large enough disk contact to give absolute rigidity at all times without lifting or giving. All

bolts should be fitted to drilled holes. Brace bars must be heavy enough to prevent warping, or bending so as to keep the scraper down on the plates. The delivery should be on the inside edge of the muller, to allow the material

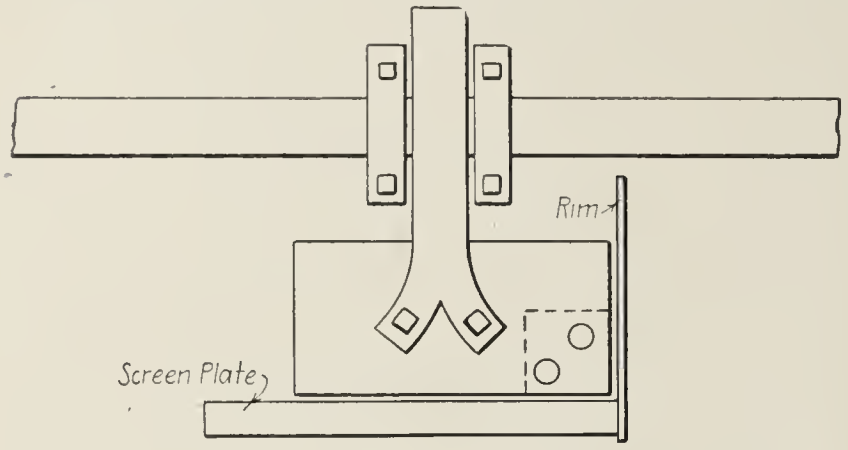


Fig. 5. Auxiliary Scraper

to sweep across the tire and grinding plate for even wear and efficient grinding. The steel wearing shoes, of four by three-quarter-inch steel, should be fastened in sections with bolts so placed that the nut and spring washer are on the back side of the scraper to prevent wear on the nut or thread of the bolt. It is important that provision be made for the exchange of these parts quickly, without removal of the scraper itself, and that they be standardized to enable the manufacture of spare parts to match them. At the rim end of the scraper a piece of eight by three-quarters-inch steel is fastened, with holes so drilled that all four corners may be utilized against the rim. On these corners a piece of four by four by one-half-inch steel may be riveted to prolong the wear and economize on steel. In ordinary operation, by renewing these small pieces in time, the larger piece may be used a great number of times and the pan kept in first-class condition. See Fig. 4.

AUXILIARY SCRAPER

No slotted holes should be allowed in any part of a dry pan. With them it is impossible to keep parts in place. On the same bar holding the large scraper, and three feet ahead of it, a small scraper may be fastened to clear the rim edge of the screen plates. This auxiliary scraper has a great deal to do with the grinding capacity of a pan, and its effectiveness depends upon the rigidity with which it is held and the care taken to keep a sharp square edge and corner at the rim. It may be fastened by bolting to a square bar, attached at a notched position in the horizontal bar with "U" bolts and plates as shown in Fig. 5.

The corners of this piece should be reversible and their wearing qualities enhanced by riveting on wearing pieces. Upon the attention and care given these two types of scrapers to keep the screen plates free and clean, depends the efficiency of any dry pan, and no detail is too small for consideration.

TRUE AND ROUND PAN RIM NECESSARY

It is utterly impossible to gain the object sought for with careful attention to scrapers, unless care is also taken that the pan rim remains true and round. If the scrapers underneath the pan are allowed to wear to the extent that a clay fillet banks up under the rim and between the rim and the outside foundation or retaining wall, the friction and wear on rim bolts will cause the holes thru the rim to become worn and slotted and will allow the rim to buckle and weave in places. This makes it impossible to set the scrapers tight to all parts on the rim, causing it to start building with hard clay over which the scrapers will ride, losing the greater part of their effectiveness and necessitating frequent stopping of the pan to chisel out the cement-like material. Care must be taken to run a pan absolutely empty at night, or the rim may be badly twisted when the clutch is thrown in the following morning.

SCRAPERS UNDERNEATH PAN

The scrapers underneath a pan are a source of constant annoyance and trouble in winter. They are rather awkward to get at for examination and repair, unless provision has been made for trap doors in the floor. The scrapers should extend out beyond the rim to the outside retaining wall. By riveting pieces of four by one-half-inch steel to the eight by three-quarters-inch steel scrapers attached to the arms, and carrying a spare set for each pan, much time may be saved in renewals. See Fig. 6. The horsepower consumed by a dry pan is affected more by the condition of these scrapers than almost any other factor. Unless they extend out beyond the rim and have square corners, the friction caused by the building of clay will become so great as to stop all efforts to run.

The tightness of the bolts and nuts on these arms, scrapers, and rim underneath a pan is a constant source of worry to factory foremen and superintendents. Spring washers, locknuts, daily inspection and tightening generally are fairly effective, but sometimes they do work loose under the pounding and vibration and tear up the floor, causing a shut-down and a nasty repair job. Castle nuts and cotter pinned bolts, such as are used on motor trucks, make such an occurrence practically impossible. When used with a spring washer they stay put, but are rather expensive. They likewise do not have standard machine threads. Blank castle nuts may be purchased, however, and can be tapped to suit an ordinary machine bolt.

The grinding of shales and clays fresh from the quarry in the winter time involves a high repair cost and the rapid depreciation of any pan. Bearings, gears, clutch, and belts go at a rapid rate. The duty varies with the thermomcter and snowfall.

Very little trouble is experienced with well designed elevators equipped with good belts, other than with material freezing and sticking to the buckets and belts. With a scraper fastened across the elevator housing to clean the head pulley, and a daily cleaning of the buckets, elevator troubles are not serious enough to warrant much discussion here.

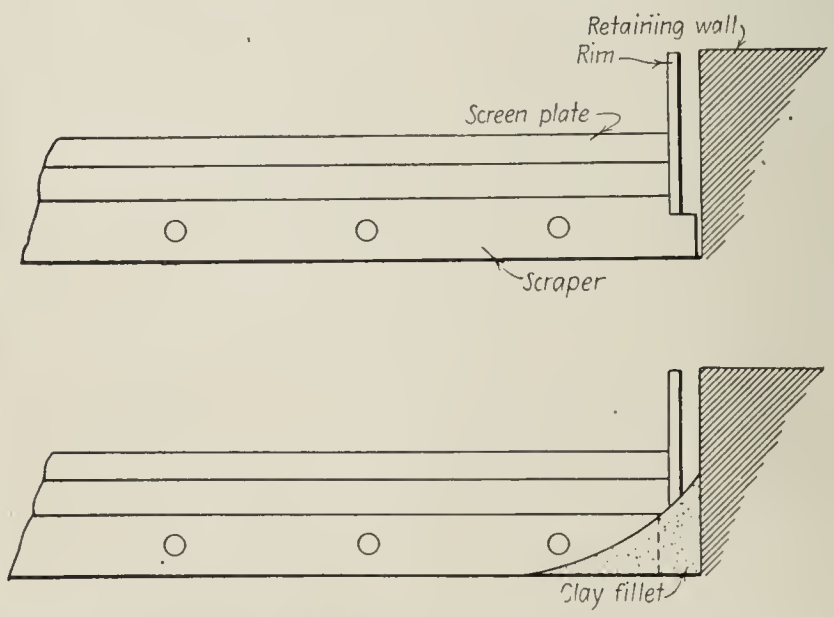


Fig. 6. Scraper Beneath Pan (Above) That Extends Beyond the Rim to the Outside Retaining Wall, and One (Below) That Does Not, Resulting in Clay Building Up and Stopping the Pan

CONCERNING THE SCREEN ROOM

The screen room requires a great deal of attention in the winter time. Insignificant details of construction that are unnecessary under normal conditions, become big problems. Incessant coating of clay on wires and chutes, choked tailing spouts, cement-like chunks of frozen dust that build up, break loose and jam the spouts, keep the screen man on the jump. Built upon the factory roof, where it is subjected to all the icy blasts of winter, care must be taken to close up the crevices in the screen room and make it as warm and tight as possible. The screens should be set at about an angle of forty-five degrees to assure sufficient velocity in the material to prevent undue clogging and coating over of the wires. Under ordinary operating conditions, this will make possible the full efficiency of the screen and separate out all the fine dust, but in wet weather and in winter, twenty-five per cent. of the material will rush over the screen and return to the pans. To check this and force all thru, three swinging baffle doors of sheet metal may be suspended at spaced intervals over the screen to throw and spread the dust down onto the screen as shown in Fig. 7. These should be weighted with pieces of iron to prevent swinging to such a height as to foil their purpose.

As the dust is thrown from the buckets against the first door, it is thrown down onto the screen and spread. It will rebound to strike the next baffle door, and so on, until the fines are separated out before entering the tailing spout. These doors should be bent to a slight "V" shape to spread the dust that naturally tends to follow the central channel in its course down the screen. A little experimenting with their location and weighting will soon increase the screening capacity to normal efficiency.

Piano wire screens require constant cleaning and adjusting where the material is of such nature to necessitate fine dust for successful operation. They are generally located in a small cramped place and difficult to get at to repair. The wires wear out at least once in two months and require renewing. To facilitate rewiring, repairs and cleaning, and to minimize a disagreeable job, screens may be built in duplicate, that is, two screens mounted side by side on a movable frame work traveling on light rails, with the connection to the elevators and downspouts so arranged as to permit moving either screen into position at any time during the operating period. (See page 353, February 13, 1917 issue of "Brick and Clay Record.") The screen man would be enabled to have a spare screen, repaired and adjusted, ready to shove into place at any time and he would do the rewiring and cleaning out in an open space where he could see and accomplish something besides eating dust and pawing over a mass of wires and keys under a down chute, in a dark place, without room to work if he did have light.

TAILING SPOUTS

Tailing spouts are simple to build—so simple that lack of forethought; often thru inadequate construction, causes one round of trouble after another thruout the winter.

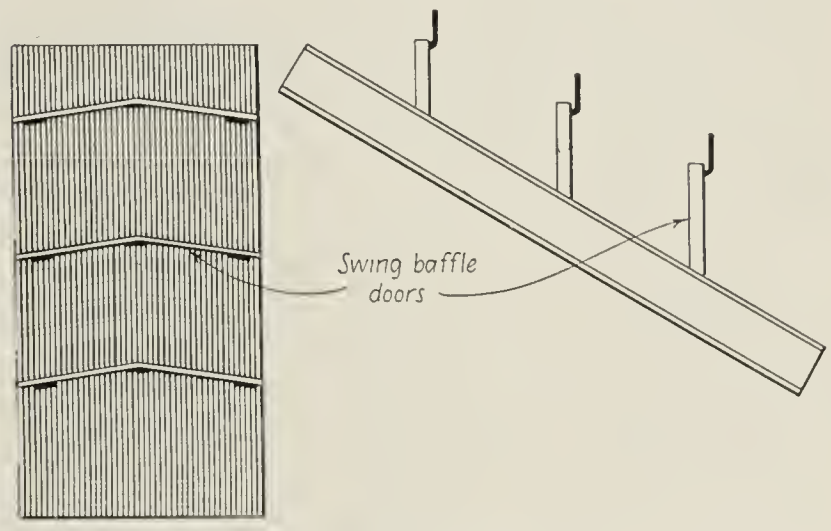


Fig. 7. Baffle Doors of Sheet Metal to Throw and Spread Dust Down on Screen

Wooden spouts wear out quickly. Lining them with sheet iron will prolong their life, but in the winter time causes the tailings to freeze and build to the metal, choking the spout and causing no end of trouble. Tailing spouts should be as steep and with as few angles as possible. They should be built twice as large as is theoretically necessary to handle the volume of material and the cover or top of the spout constructed in short removable sections, making the interior accessible at a moment's notice to prevent a choke-up.

WAR'S END *will open* BIG FOREIGN MARKET *for* BURNED CLAY, *it is* BELIEVED

WHEN THE DANGER of a railroad strike, which had been threatening, passed, a big load was lifted from the minds of real estate operators, architects, contractors and dealers in building materials, for it is an indisputable fact that the prospect of a nation-wide rail tie-up filled the men concerned with building construction and real estate development with greater fear than even the war clouds hovering over the country these many months.

NO CAUSE FOR ALARM SEEN

With regard to the war most people have felt that sooner or later we would be in it "with both feet." They have been reading war and talking war morning, noon and night, for many, many months and it is only natural that many have planned a course to be followed in the wake of the "overt act," the retaliation of Uncle Sam, and so on. It has been felt right along that in the event of open hostilities the United States would conduct a defensive rather than an offensive campaign; that what fighting is done will be chiefly on the high seas and that will be between submarines and submarine chasers rather than between battleships and cruisers, due to the new style of modern warefare.

Students of the building situation have long been considering this very thing and, while admitting that the very fact of the United States being at war would naturally result in turmoil and internal excitement, nevertheless it would not result in hysteria among the people. Americans do not want war and Americans are not blood thirsty. Proud and patriotic, of course, yet we have seen too much suffering and horror across the waters, with absolutely no benefits to offset the bloodshed, either now or in the hereafter, to lust for gore ourselves. If there is to be war it will be with the Nation a good deal like it is with the individual who sleeps with a revolver under his pillow—he has the gun, not because he wants to kill

anyone, but because he would feel safer with it if he woke up in the middle of the night and found a burglar in his room.

BUILDING MATERIALS PRODUCERS LOOKING AHEAD

Building materials manufacturers and dealers, realizing all of this, are therefore concerning themselves not only with the present market conditions but are looking well into the future and are actually planning for business after the war is ended, according to "Brick and Clay Record's" New York correspondent. Nobody knows when this will be, but the end is not so far away that it cannot be prepared for, is the prevailing opinion. The United States will play an important part in the re-establishment of the industries of France, Belgium, and especially Russia. It is expected that millions of dollars worth of building materials will be sent from this country for use in constructing buildings of all kinds in what was, until a few days ago, the dominion of the Czar, but which may now be a republic. During the past month, M. S. Pines of Petrograd has been in New York. He was a constant visitor at the National Complete Building Exposition at the Grand Central Palace, and has placed many orders to be filled after peace has been proclaimed.

BRICK TO RUSSIA?

This visitor is representing several of the largest firms in Russia. He has been advised by several of the leading building materials producers of the country in his tour of the commercial districts of the United States, and his coming will undoubtedly open the way for brick and various other clay products to find a big market in Russia.

It is something new to have Russia looking to the United States for brick and other basic building materials. The past policy of Russian business houses has been that they have gone to England and other European countries, but these countries will have trouble enough in taking care of their own needs after the war ends. Of course, it will depend a great deal to what extent the United States becomes embroiled in the melee of nations and how long we are to participate, as to what, if any, curtailment will occur in our productive abilities. A prolonged war and plenty of real fighting on land and sea for the United States cannot help but affect our resources of labor to some extent, but it must be admitted that it would take a terrific amount of war to cripple us in this regard. We are so big that it is sometimes said we do not realize our own greatness. There is some speculation on what war will mean to the United States and the average man will tell you that we are destined to take a part in the readjustment of the world, but in the meantime, the United States will proceed to develop and construct within its borders and to plan, and prepare to help reconstruct some other parts of the world that our fellow men are now so energetically tearing to pieces.

FURTHER PRICE ADVANCES TO COME

In the matter of prices, there is no assurance from any quarter that the price of any building commodity will not be increased. There are many reasons for this, not the least of which is governmental requisition for many basic building materials, especially cement, steel and lumber.

Couple this to labor shortage, insufficient supplies of fuel and raw materials due to transportation difficulties occasioned by freight embargoes, and then consider the fact that despite the tendency to postpone building operations the demand is greater than the supply, and one can easily see that the problem is of gigantic proportions and likely to remain so, especially with the country in a state of war.

Still further price movements upward is what you hear if you go delving around looking for an argument as to why "stuff" should remain at top notch prices. Instead of encouragement, if you are looking for such a thing, you get from most any quarter "yes, things are high, but not as high as they might be." Is it any wonder then, that a lot of contractors, rather than to "start something," either hold their tongues and start operations or "say nothing and saw wood," waiting for something to happen?

BRICK AT TEN DOLLARS GOING STRONG

A near famine in brick in Manhattan threatened for a time during the early part of this month and brick at $10 a thousand were going strong. A new price list for hollow tile is expected to show increases made necessary because of a lack of coal, labor and raw materials and architects were advised to go slow on estimating until they have looked over the new lists. Wire nails jumped up twenty cents and copper two cents. Lindseed oil is quoted at a dollar a gallon for the second time in a decade and the trade expects a price considerably higher before long. There is a shortage of linseed and this means stiff paint prices. The metal market exhibits signs of uneasiness due to the demand from all quarters, including the United States government. Railroads are calling for much of the structural steel, but especially in the metropolitan district has the demand for shapes for mercantile and office buildings been lagging. There is no lack of important projects in sight, but prospective builders are letting the government have the inside track in the hope that a recession in prices will be possible later. What they base such hopes on they do not say. Conditions all point to an opposite condition.

HIGH LUMBER COST HELPS BRICK CONSTRUCTION

There is a shortage in lumber stocks and prices all lean sky-ward which has a tendency to greatly interest prospective builders of suburban homes in brick, as well as hollow tile and stucco propositions. Fewer nails, less paint, not much lumber and the lasting qualities of brick are arguments that can be put forward now more than ever before, and with the proper presentation, will win. In fact, build-with-brick arguments may come so strong that manufacturers will have to more than hustle to keep abreast of the demand.

There is no disposition in New York City to make any claims relative to the costs of one character of building being less than the costs of another, for the situation is affecting all commodities. Nothing is cheaper than it was a year ago, not even second-hand brick. On the contrary, second-hand commons have sold for as high as $12 a load of 1,500 which, in itself, is a record-breaking stunt for the New York market.

STATUS OF PLAN FILINGS IN NEW YORK

Plan filings in Manhattan for the first part of March, after the first week, have fallen off as compared with last year's figures, but the total since January 1 is greater, being more than $16,000,000 as compared with slightly over $10,000,000 for 1916. These approximate figures are for both new and old undertakings. The Bronx is running away behind, figures gathered so far indicating approximately $2,000,000 in new and old work for the first part of this year as against more than $4,000,000 last year. Brooklyn is still holding her own with approximately $8,000,000 for new and old jobs for both periods of 1916 and 1917. Queens is running behind with approximately $2,500,000 this year as against $6,200,000 last year.



THE SOLE REPRESENTATIVE OF BURNED CLAY AT THE SECOND NATIONAL COMPLETE BUILDING EXPOSITION

The Above Pictures Are Different Views of the Hay-Walker Brick Company's Exhibit at the Grand Central Palace In New York, March 5 to 11. This Display Was Made Possible by the Generosity of a Number of Clay Products Manufacturers Thruout the Country and the Particular Company Mentioned

WHY CLAY PLANTS LOSE MONEY

There Are Just Three Poisons That Kill a Business—Competition, Laziness and Ignorance—and the Worst of These Is Ignorance, Including Lack of Cost Knowledge

By E. A. Hults

Sec.-Mgr., North Iowa Brick & Tile Company, Mason City, Ia.

(*Read Before the Iowa Clay Products Manufacturers' Association at Its Annual Meeting Held January* 16 *to* 18, 1917, *at the Iowa State College, Ames.*)

THIS SUBJECT could also be headed, "Why Clay Plants Do Not Make More Money," and still be one of vital importance to all. Some of you manufacturers who have had an exceptionally good year may think that it is not of great interest, but I firmly believe it is of just as great value to the concern which has made money, as to the company which has not, for the reason that those companies which have lost money are generally working hard to find out how it was lost, and, to overcome the trouble, are more active on this subject, while, on the other hand, the concern which has made money is prone to be content and follow the line of least resistance.

The profits of that company which has made money may be partly, or wholly, due to causes or influences entirely foreign to it, and not the result of any effort on its part. And above all, while it has made money, does it know *how much more it could have made, or what losses it could have prevented?* Thus, the concern or individual content to travel with the tide, trusting to conditions, and believing there is nothing to be done because the *assumed* efficiency of the organization is no less than it was five years ago, will find itself stranded on dry land when this present period of prosperity will have passed and been replaced by one of depression.

INACTIVITY THE MURDERER OF EMPIRES

The nation, concern, or individual that does not progress will surely die; history shows this to be a proven fact. The fall of all great empires was primarily due to being content with conditions, and to a cessation of the struggle for advancement. Study and analysis of large successful organizations show us that they always keep conservatively climbing, and make marked advances in efficiency and progress each year. The average wealth or prosperity curve of the United States steadily shows an increase for each succeeding period of years. An analysis of this curve further tells us that it is the large, conservative and broad-minded concerns which are making increased wealth for the country and overcoming the failures and faults of others. Some of the contented do not fail, or their business does not decrease from year to year, simply, and only, because some broad-minded competitor or follow manufacturer keeps the market stirred up and thus creates enough business so that the non-progressive manufacturer happens to fall in for a sufficient amount to make him contented, and keep him alive. A good example:

There are twelve plants in a certain district; eleven of them decided to do something to stir up channels of new trade, and to increase the efficiency of their factories. Mr. Twelve stays out, does not believe in their work, and generally is afraid he might lose something. Thru the activities of the eleven, Jones, a farmer hears about a new design of hollow tile hog house or barn which he easily sees is best for him. Jones decides to build a hollow tile barn. The only friend he knows who makes that material happens to be Mr. Twelve, and consequently he buys his tile from him. Generally Mr. Twelve sells them at a price slightly under that asked by the other eleven, due to his ignorance. He figures that if the eleven can sell them for $40, he can sell them for $38, for he does not share the additional expense. Jones does gets a cheaper tile, but due to the ignorance and inefficiency of Mr. Twelve, he also gets a poorer one. If it were not for the work of the eleven progressive manufacturers, Mr. Twelve would not have sold this particular job. The eleven plants have, however, increased sales and efficiency, and made more money, while Mr. Twelve does about the same as usual. If he were working with, and not against, the eleven, he would greatly profit in all ways.

DRIFTING WITH THE STREAM UNPROFITABLE

I have often heard many men say that it was not necessary for them to do this, or that, co-operative work; join this, or that, association; investigate this or that improvement, for the other fellow will do it, and I make my little profit (and little, it is) by simply running my own plant. His profits are in no way due to his efforts—they are due to conditions, and remember, conditions change.

It was my privilege several years ago to be present at a meeting of large representative men in a line similar to ours. This meeting was called to overcome unhealthy conditions of business and manufacture. These gentlemen decided they could not possibly afford to stay apart; that they *must* work together in order to exist. Allow me to briefly outline what they did. First, they created a *just* demand for their products, then co-operated to cut down costs and the purchase of raw materials and established a simple system of universal cost analysis. What happened?

Sales and profits increased because of better efficiency and closer co-operation; there was very little, if any, price cutting, for each man knew *accurately* what his *actual* costs were. They pulled themselves from a point of bankruptcy to a sound basis. A few concerns were too narrow to work with the others; today these few have passed out of existence—they simply could not keep up the pace.

CO-OPERATION, EFFICIENCY AND ACTION

Hugh Chalmers once expressed this thought very nicely. He was visiting a friend's country home a few seasons ago, and while sitting on the veranda overlooking the beautiful gardens, noticed a graceful fountain playing in the center of a flower bed. This fountain was fed from a tank on a yonder hill thru a pipe line. Mr. Chalmers said, "My friend, your fountain and its system gives me a wonderful thought. In the fountain I see profits; in the tank, co-operation, efficiency and action; in the pipe line, the plant from which the profits are made. What would happen if we turned the water off at the tank? The fountain would keep on playing awhile, and then stop after all the water had run from the pipe line. So, I see in my business if I want to keep making profits, progress, and help my fellow man, I must always see that the valve of co-operation, efficiency and action is wide open."

Pause, and seriously think about this. Just picture how much greater our business and happiness would be if we were all watching to see that the valve of co-operation, efficiency, and action, thru which profits must flow, *was* kept wide open.

In this state or district, as individual concerns, we have different physical conditions, but the basic principles of our big problems are the same, and we cannot afford to ignore each other in attempting to solve them. Statistics show that our industry is the third largest in the mineral field, and, sad to state, the most inefficient. Is it not time that we, as a whole, awakened and moved en masse to overcome this condition? It can be overcome and is gradually, each day; but we should all try to hasten our betterment as much as possible.

THE MAKERS AND DESTROYERS OF BUSINESS

I have so far endeavored to show how vitally important it is to our future welfare that we work with, and not against, our fellow manufacturers and our individual organizations. Let us now analyze the causes of our troubles and see how they can be overcome.

There are just three things which kill a business—competition, laziness, and *ignorance;* and there are just three things that make a business—co-operation, action, and brains. I use the word brains here instead of knowledge, for brains covers both knowledge and wisdom.

COMPETITION DEFINED AS COMMERCIAL SUICIDE

Competition is a much abused name and policy. Some believe it is an excellent thing, but not the way it is practised. About the best definition I know of competition is: A legitimate excuse to go out and cut each others' throats—cut prices and use antiquated selling schemes involving special privileges, credits, allowances, discounts, etc. In other words, a good means of committing suicide. This is all very costly and as soon as a breathing spell occurs, we *must* hasten to make up the losses competition has caused us, in order that the public really pays for it in the end. Competition is largely due to our periods of depression; you cannot get away from the law of supply and demand, which means that you cannot sell the people more goods than they want. When general business conditions begin to tighten, we all start out one hundred per cent. stronger to move our ware. We are up against a well-filled market and the average buyer, being well stocked and having his wants filled, demands some inducement to purchase. Then we start to cut prices or give special datings, credits, or other forms of privileges to move our stock. This condition may start only in one line, but soon other lines take it up, and so on down until the whole country is at it. The result; we simply cannot stand the strain, so one by one we begin to curtail operations and lay off men and depression is again with us.

How much better off we would be if universal co-operation were applied. If we could have a central bureau which would publish, periodically, the sales and demand of various goods, keeping each line of manufacturing separate—something similar to our government crop reports and bank clearings—we would eliminate a large amount of waste and would all make more money. It is a splendid scheme to think about and one which would be practical. I urge you to seriously consider it.

CO-OPERATION—THE PATH TO SUCCESS

Co-operation—the salvation from industrial ills and the dawning spirit of business—is most wonderful and gracious in its action. It has lowered the cost of goods to the consumer more than anything else; it prevents labor troubles, and it saves and makes us money. Your fellow manufacturer's basic trouble or problem is just as much yours as his; sooner or later you will face it. Thru hearty co-operation, these problems can be *correctly* solved, and all will greatly profit. Especially is this so of labor troubles and competition from manufacturers outside of the state or district.

CONSIDERING THE PROBLEM OF LABOR

While we are thinking of co-operation, let us consider for just a moment the subject of labor. I believe that, in many cases, our labor troubles have arisen simply because we employers have not in the past co-operated with our employes. Labor is one of the biggest problems before us at present. Some of us have spent thousands of dollars improving the efficiency of plant and machinery; have we spent anything to improve our labor? Very little. We have let it slide along until finally it is at the gates of the American Federation of Labor, an organization which has millions invested, the returns from which are used exclusively to legislate for labor and to fight against industry. It is no longer a case of whether we *want* to co-operate for our existence—we simply *must*.

There is a vast amount of good that we can all do to help this labor problem. We must educate and show our men that a raise in wages and no corresponding increase in efficiency and production simply means that he must pay more for his goods. It is a big problem, but never will conditions be stable until the men see this point. I know labor is slow to comprehend but the distribution of proper literature and a healthy interest in the social, living, and working conditions of your employes will greatly help. Too many of us are not close enough to our men to gain their confidence. The greatest assets a workman has are his ability to perform, and his knowledge of his work. Show him how to increase his efficiency and improve himself, how he can earn more money and become a betterment to humanity. When he has done this he has placed himself in a position where he can continually receive higher wages and be of greater value to his employer. No matter how ignorant you may think he is, he *can* be improved and will always appreciate it and stay by you. I have found that the average laborer realizes that his present basic wage is not higher because of his lack of knowledge and his inefficiency; he cannot help seeing this for all about him are men doing higher grade work at a higher wage. Remember, the majority of humanity generally appreciates a good, kind act, and helping a man to improve himself is certainly a kind act.

Anyone who arbitrarily grants a demand to his men without endeavoring to show them how they can earn more money does great harm both to the men and himself, for, as I pointed out above, the workman's best asset is his education. If, then, he is not instructed as to how he might increase his earning power when he presents his demands, the laborer loses a good opportunity of helping himself and the employer has a poorer organization.

LAZINESS AND IGNORANCE FORERUNNERS OF FAILURE

The next business detriment is laziness; it begets both competition and ignorance, and for this reason is of utmost imporance. Business laziness exists in two forms, mental and physical. There is little we can do for the lazy concern, except to extend our sympathies and let it die, for it cannot live in this day and age.

I named ignorance the last of my three business killers, for it is the most important; if we possessed the proper knowledge and wisdom of business, there would be no room for competition and laziness among us. Ignorance has caused more failures and losses in business than all other causes combined. Ignorance of capital needed, of financial conditions, of engineering problems, of social and labor conditions, are all good examples, but the greatest is our astounding ignorance of the cost of our products. Many of us think we know, but we really do not. We are all in business to make money. What we make is our net profit—the difference between the net income from the sale of our goods and the gross cost to place our goods in the hands of our customers. It is vitally important for the successful piloting of our business that we intelligently establish future policies, estimate future conditions and know the present status of our affairs. This we are unable to do unless we can quickly and accurately know our costs. It is not at all necessary to guess, or grope in the dark, when we can very cheaply and easily secure these most important facts.

(*Continued on Page 677.*)

Cleveland Has First Fire-Safe Sub-Division

The first high-class residence tract for Cleveland, Ohio, to be devoted exclusively to the erection of brick, stucco and tile houses, has been opened by the Lovett Service Company of that city. The tract comprises twenty-three large lots near the Lake Shore west of Clifton Park, a high-class suburb. The value of the project is seen in the fact that houses will cost not less than $10,000, and many will be as high as $15,000. The tract will be embellished with serpentine drives in order to preserve the natural beauties of the district.

The movement is under the direction of the Fire Safe Development Company, with Earl J. G. Lovett as the president. The development company's offices are with the Service Company, in the Hippodrome Building, Cleveland. Present plans call for houses designed by one architect, of one design, with uniform planting and landscaping. The chief advantages of this plan, it is pointed out, are that the community will be safeguarded against the fire hazard, as well as insured regarding the high character of the allotment.

The movement is the result of co-operation on the part of the Society Advocating Fire Elimination, and is also due to the fact that the company back of the project is a convert of the S. A. F. E.

Trenton Plant to Make Silk Mill Porcelain

The scope of Trenton's industrial activities will be widened during the next few weeks by the addition of a new enterprise in the clay products manufacturing business. When alterations and the installation of equipment at the famous Cook Prospect Hill pottery have been completed, porcelain appliances used in the making of silk will be produced at the plant.

Announcement has been made in Trenton that Charles Howell Cook, owner of the Prospect Hill Potteries, recently closed negotiations with the Mitchell-Bissell Company, large importers of New York City, for the lease of a portion of his plant for the production of porcelain ware. This particular variety of ware has never before been manufactured in this country and the Department of Commerce and Labor in Washington has for some time been anxious to bring this industry to America.

It is said that the appliances, which are principally small porcelain guides, requiring exceptional skill in their manufacture, have heretofore been produced only in Germany. The available supply is fast being exhausted, and as a result, the silk industries of the country have faced a serious situation.

Secretary Redfield, of the Department of Commerce, recently communicated with Secretary Salter of the Trenton Chamber of Commerce asking for his co-operation in locating the industry in Trenton, which was given.

The installation of machinery has been started and it is expected that the work of preparing the plant for porcelain manufacture will be commenced within a few weeks.

Ohio Farmers Now Mine Coal

The big mines are not the only ones in Ohio that are working to capacity to supply the seemingly insatiable demand for coal which is being made by the fuel-famished citizenship and industries of the Buckeye State, according to the Middleport (Ohio) correspondent of the Cleveland "Plain Dealer."

Small domestic mines, located on farms, many of which are as far as ten miles away from a railroad, are being feverishly operated in an effort to market as much of the "black diamond" as possible, while the price remains at fifteen cents a bushel. The farmers, in order to get this price, have to haul and shovel their coal into cars, ready for shipment. But they are making money—many who do not live at great distances from the railroad are realizing as high as thirty dollars a day.

The average load for a team is fifty bushels. Some small mines are sending as many as eighteen wagon loads to the railroads each day. On many of the thorofares passing loaded coal wagons and returning empties almost block traffic.

This is of far more than general interest to the brick manufacturer in Ohio, since it is known that the small mines are rendering great aid in keeping the smoke coming from the kilns. Many of the plants, while not relying upon this inadequate source, are finding it of very timely assistance in passing over the period of coal shortage.

The Gill Clay Pot Company of Muncie, Ind., has filed papers with the secretary of state, announcing that it has increased its common stock from $10,000 to $100,000 and its preferred stock from $10,000 to $25,000. The increase, it is said, came as the result of an increase in the company's business.

From KILNS *to* JOB

Dealing with the Fitting, Marking, Shipping and Anchoring of Terra Cotta, and Showing Some Typical Operations

By Herman A. Plusch, M.S., Cr. E.

Research Engineer, Abrasive Company, Philadelphia, Pa.

TERRA COTTA, when drawn from the kiln, is delivered to the fitting department, or put in piles, each piece being properly protected from the other by boards



Fig. 1. A Large Ornamental Capital Being Put Together in the Fitting Department of a Terra Cotta Plant

which separate them until enough of the material accumulates to form complete courses or features.

Except where pieces repeat, each piece has its special place in the building and must be right for size, color and general alignment. The fitting department is the final inspection department in a terra cotta plant, and in this respect is an important unit. Attention is called at this point to Fig. 1, which illustrates a large ornamental capital in the process of fitting.

MARKING TERRA COTTA PIECES

The manufacturing marks appearing on each piece of material, which have been previously cut in the model, bear the order number, section and "triangle," as it is called. The order number is, of course, self-explanatory, but the section to which the piece applies may be a special feature. If an entrance to a building is designated as Section A, every piece used in the construction of that part will be marked with the order number and "Sec. A." The "triangle" or piece number follows next and is used to indicate the starter block at the base of an entrance, which piece would carry the marks "777 Sec. A," in the mold. If there were more than one entrance alike, the pieces which are the same would bear the same mold marks. By the time the pieces are received in the fitting department, these marks, in most cases, have served their purpose and the pieces are painted with black letters and figures which correspond to the setting drawings, mentioned in an earlier article, and illustrated on a following page.

The pieces, after they have been assembled and marked as per drawings, cut and rubbed to size, are ready for shipment.

SOME TERRA COTTA MORTAR POINTERS

The best mortar composition for setting terra cotta consists of three parts of a good grade of non-staining Portland cement, one part thoroly hydrated powdered lime, and six to eight parts of clean sand. Lime which is slacked at the building is not a safe proposition, as small lumps not thoroly slacked or hydrated will swell when confined in the mortar and something will have to give way under the pressure. The writer has seen pieces pushed from the face of a perfectly good piece of terra cotta, thru the expansive action of unslacked particles of lime, and corners broken from hard burned brick which were set in a mortar containing unslacked lime.

The writer has seen a loamy or clay contaminated sand used in place of clean material. Mortar made from such material will never set properly. Unburned fire clay had been added to a building mortar which was recently called to my attention—such ignorance is criminal. Additions, such as plaster of Paris, to mortar to quicken the set produces such an expansive action when setting that tons of pressure are exerted by small amounts of such mortar over the entire structure. Terra cotta broken by the action of the mortar is apt to be criticized as

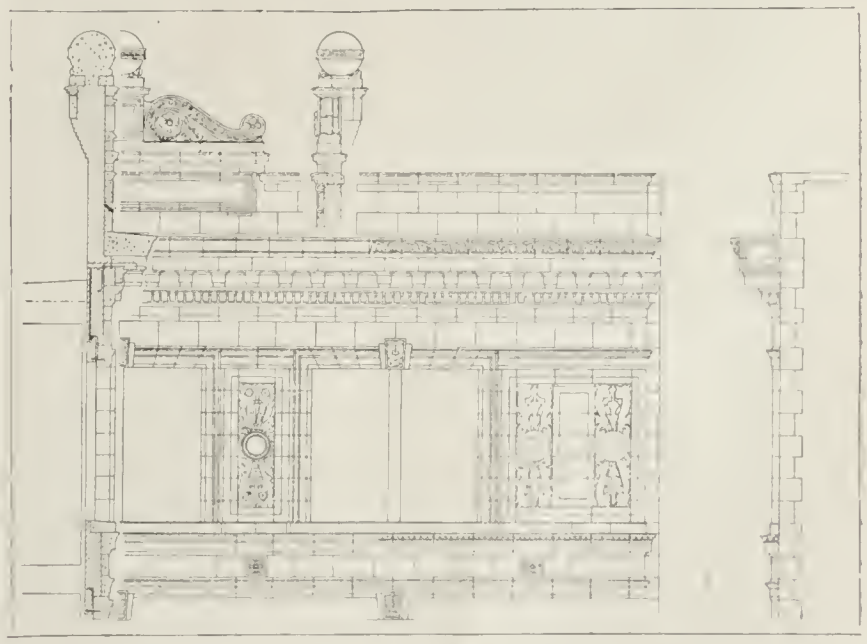


Fig. 2. An Architect's Half-Inch Scale Detail of a Front Elevation, Showing Parapet and Cornice, as Well as Indicating the Proposed Method of Jointing

defective when the fault actually lies in the mortar used.

The addition of salt to mortar during cold weather

to prevent freezing is also to be condemned on account of the contraction produced in the mortar and its later action in giving up soluble salts.

FILLING THE VOIDS OF TERRA COTTA

According to the writer's observations, it matters little

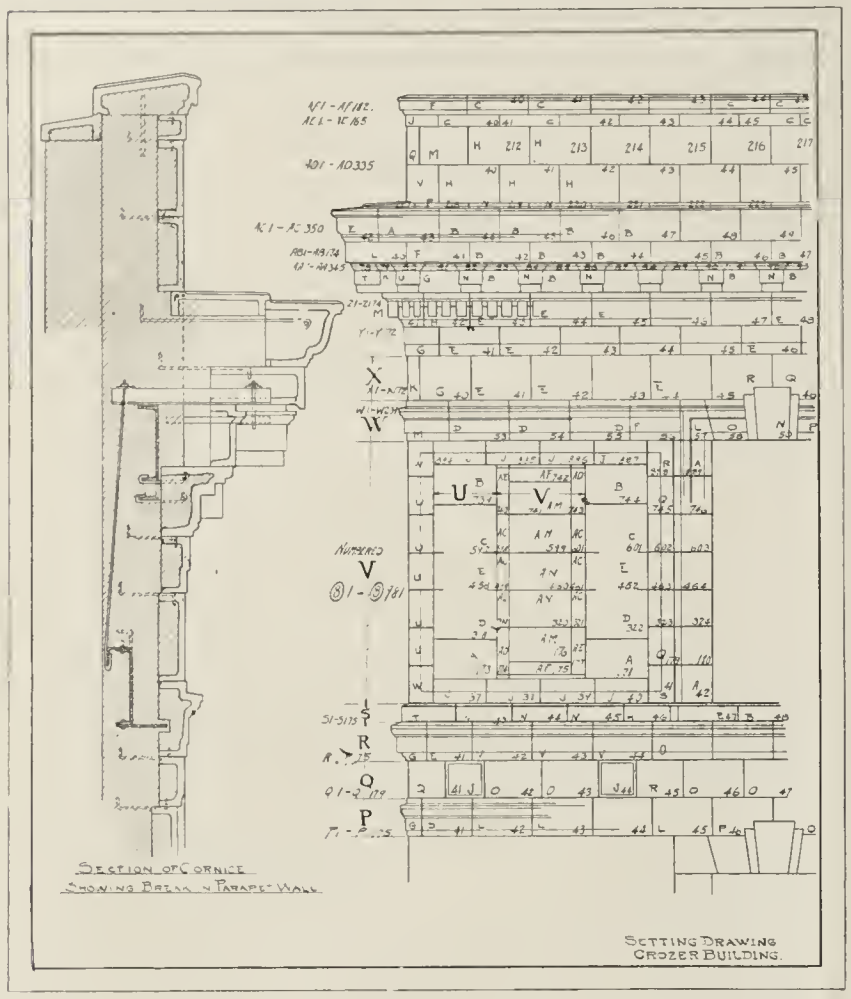


Fig. 3. Drawing of the Same Job as is Shown in Fig. 2, Showing the Front Elevation and Section of the Main Cornice and Parapet, with Method of Anchorage, and Showing the Number of Each Piece Which Designates Its Final Location

whether or not the voids of terra cotta are filled, provided such filling is not essential to produce increased bearing strength, and the material is well bedded in good mortar and pointed up properly with a rich, non-staining cement mixture. When necessary to fill terra cotta, a mixture of one part of cement, two of sand, and four to six of stone is recommended.

Water *must* be excluded from the back of terra cotta, and prevented from entering through the joints. Any building material which is so placed as to allow water to collect and freeze in pockets or in voids back of it will necessarily suffer damage.

In a few cases it has been my duty to investigate so-called "defective" terra cotta, but in nearly all cases the fault has been in the setting of the material, in mortar used, or with the concrete composition used for filling.

Another point that might well be presented here is that of washing down, or cleaning, a terra cotta building. Many of the "old line" contractors persist in using for this purpose a dilute solution of hydrochloric or muriatic acid. Nothing could be more harmful; the acid acts upon the cement and the resultant discolored liquid runs down over the face of the terra cotta and leaves a stain. Use only alkaline abrasive powders with water and plenty of "elbow grease" in cleaning terra cotta.

TYPICAL SPECIFICATIONS FOR TERRA COTTA

Following is a typical set of specifications for the manufacture of architectural terra cotta.

QUALITY—Architectural terra cotta shown on drawings, to be manufactured by the ———, or to be a product equal thereto.

DRAWINGS—The terra cotta manufacturer shall prepare shrinkage scale full size details; two sets of scale shop drawings showing jointing, anchoring, etc., and submit same for approval. All drawings to be in keeping with the general spirit and effect desired in the design of this building.

ORNAMENT—All ornamental work shall be modeled by a competent modeler, and photographs in duplicate submitted to the architect for approval before being burned.

COLOR AND FINISH—Terra cotta shall be a cream mat glaze (or other color) smooth or special texture surface, all to be selected by the architect.

WORKMANSHIP—Product to be of the best shop practice; well pressed and finished, with sufficient webs, raised joints on washes, reglets and drips in sills and coping and whatever else necessary to make a workmanlike product.

FITTING—Each piece to be rubbed to gauge, allowing three-sixteenth-inch joints, all to be assembled and numbered at the works, in accordance with the numbered setting drawings. No sorting or cutting will be allowed at the building.

SHIPPING—Work shall proceed thru the works in features or stories, each feature to be shipped complete when notified a reasonable time in advance by the general contractor.

ANCHORING—Anchors are not included in the terra cotta contract. Iron-man shall follow the terra cotta layout for punching beams, and to furnish anchors where shown on terra cotta drawings.

DRAWINGS FOR TERRA COTTA PIECES

Figure 2 is an architect's half-inch scale detail of a front elevation showing the parapet and cornice, as well as indicating the proposed method of jointing. The proposed method of jointing, however, is subject to change by manufacturers to work the material to best advantage and occasioned at times by architects showing pieces not practical to make. This is the only information ordinarily received by the terra cotta manufacturer and from this drawing a full size working drawing of the parapet and main cornice is laid out to shrinkage scale.

From this drawing profiles are obtained and all the work on models, which can possibly be executed in plaster



Figs. 4 and 5. Crozier Building at Chester, Pa., in the Course of Construction and Finished

is determined. From the full size working drawing made to shrinkage scale are obtained dimensions and instruc-



FROM COAST TO COAST TERRA COTTA REIGNS THE SUPREME ARCHITECTURAL MATERIAL

The Structures Illustrated Above, Reading from Left to Right and Beginning with the Top Row Are: Phelan Residence, San Francisco, Cal., Material Furnished by Steiger Terra Cotta and Pottery Works; Girls' High School, San Francisco, Material Also Furnished by the Steiger Company; Miami Hotel, Dayton, Ohio, Executed by the New Jersey Terra Cotta Company; Humboldt Savings Bank Building, Market Street, San Francisco, Steiger Terra Cotta and Pottery Works; Joshua Green Building, Seattle, Wash., Material Furnished by the Northern Clay Company; Old State Bank Building, Evansville, Ind., Executed by the New Jersey Terra Cotta Company; Schultz Baking Company, Chicago, Ill., Midland Terra Cotta Company, and Friars' Club, New York City, Material Furnished by the New Jersey Terra Cotta Company.

tions for anchorage provision. This drawing accompanies the work thruout the plant.

Fig. 3 is the drawing showing front elevation and section of the main cornice and parapet, with method of anchorage, and showing the number of each piece, which designates its final location. Every piece of terra cotta is numbered to correspond with this drawing.

ARCHITECTURAL CO-OPERATION IMPORTANT

A glance at these drawings will indicate the amount of actual architectural work performed by the terra cotta manufacturer for the architect, and it is largely on account of this intelligent co-operation that architects favor a material which is durable, economical and beautiful in itself and which can be so readily and correctly supplied.

Co-operation very often does not end even at this stage, for some of the large companies will contract to set the material, thus relieving the architect of extra anxiety, and assure good work as well.

The types of buildings for which terra cotta is eminently suitable are as varied as the uses to which the buildings themselves are put. Every style of architecture adapts itself to terra cotta and terra cotta is



Some Products of the Brick, Terra Cotta and Tile Company of Corning, N. Y. The Top Figure Illustrates an Eagle Panel on a High School at Bridgeport, Conn., the Three Grotesques Were Used on a New York City School and the Capital at the Bottom on the War College, Washington, D. C.

adaptable to every style of architecture. This material, as is shown in some of the accompanying illustrations, may be used for the entire exterior of a building (and the interior also, for that matter) or only as a trim in connection with brick, stone or concrete.

We are illustrating with this article typical buildings from different localities which are entirely of terra cotta, or where terra cotta was selected to set off some other kind of building material. The illustrations also cover the product of different manufacturers scattered from the east to the west coast. Examples of many other terra cotta manufacturers' work could be shown if we but had the space.

SOME EXAMPLES OF TERRA COTTA ARCHITECTURE

Illustration No. 4 shows the Crozier Building, of Chester, Pa., in the course of construction, the terra cotta being anchored to the steel frame of the building with hooks, rods, etc., and tied in with a backing of brick and mortar, or concrete. Fig. 5 shows this remarkable terra cotta structure, the material for which was supplied by the O. K. Ketchem Terra Cotta Company of Crum Lynne, Pa., after the finishing touches had been applied.

One of the illustrations shows the Schulze Baking Company's terra cotta building in Chicago, the body of which is cream or ivory enamel, while the name panel letters, background of ornaments and all line patterns or pavilions, have been made in "royal blue" glaze. The spandrels and mullions are rough-cast, brownish green, shaded terra cotta, and the base course is done in a reddish brown-white speckled glaze.

For a building of this nature cleanliness and light are most essential. The color scheme adds to its attractiveness and serves as an advertising medium as well. The material for this building was furnished by the Midland Terra Cotta Company of Chicago.

FIRST TERRA COTTA STRUCTURE TO RISE FROM ASHES

The Humboldt Savings Bank and office building, Market Street, San Francisco, was the first terra cotta building to rise from the ashes after the great conflagration. The terra cotta used in its construction is of a stone color and texture and is the product of the Steiger Cotta and Pottery Works, whose plant, located in South San Francisco, was recently destroyed by fire.

The Girls' high school and the Phelan residence, both located in San Francisco, are typical in themselves and show how advantageously terra cotta is combined with different kinds of brick.

The Friar's Club in New York City, made of terra cotta resembling chiseled limestone, is a unique creation, built of the products of the New Jersey Terra Cotta Company's plant at Perth Amboy, New Jersey.

The Old State Bank at Evansville, Ind., is glazed terra cotta granite to match the natural polished stone used for the first story. The match is remarkable, even the columns and cornices made in glazed terra cotta granite so closely resembling the polished Westerly red granite used that the difference is scarcely discernable. In case of a fire, however, the terra cotta would stand out pre-eminent.

The panel showing three grotesques used on a New York City school, the capital of the War College, Washington, D. C., and the eagle panel from a school at Bridgeport, Conn., are products of the Brick, Terra Cotta and Tile Company of Corning, N. Y., and illustrate, at close range, the wonderful possibilities of well modeled clay.

The Joshua Green Building of Seattle, Wash., the terra cotta for which was furnished four years ago by the Northern Clay Company of Auburn, Wash., speaks for itself.

AMERICA'S TALLEST BUILDING A TERRA COTTA SHAFT

The Woolworth Building, material for which was furnished by the Atlantic Terra Cotta Company of New York City, is the last word in terra cotta skyscrapers. It has already received so much publicity that the mere mention of its name presents to the reader's mind that wonderful Gothic shaft which has no equal. Volumes have been and can be written about the various phases of construction and utility of this building, but we will mention only one phase of the work at this time.

The writer had charge of the ceramic work in connection with the manufacture of the terra cotta for the Woolworth Building, and while discussing some of the preliminary phases of the work, I asked the architect's representative to sketch on a sky line print, in pencil, the outlines of the Woolworth Building as it would look when completed. This was done, but the hand that did it is now stilled forever. As often as I see this building I cannot but think of it in part as a shaft to the memory of the one who made me this sketch and who worked and worried over the construction of this remarkable structure.

Every one who has seen the Woolworth Building has noticed its detailed "tracery" appearance, but few who see it know that it carries seven colors on its facade. The color, so closely studied and applied with relation to shadow values, aids greatly in giving the ornament on the building its full value. The body color (cream) is also enhanced by the "sparkle" or "vibration," produced by the natural kiln variation which was specified by the architect.

It may be interesting to know that the buildings now composing New York City's sky line, as seen from the Battery north, are constructed of more than ninety per cent. burned clay and that over fifty per cent. of this is terra cotta.

WILL PUSH BRICK *in* BLUE GRASS METROPOLIS

SEVEN of the leading manufacturers and dealers of Louisville have perfected the organization of the Louisville Brick Manufacturers' and Dealers' Association, dedicated to the object of selling and increasing the use of brick. The organization, which has been projected for some weeks but which has now been completed, has for its members the Coral Ridge Clay Products Company, the P. Bannon Pipe Company, the Southern Brick and Tile Company, the Hillenbrand Brick Company, the R. B. Tyler Company, the Union Cement and Lime Company and the Tyler Building Supply company—four manufacturers and three retailers of brick.

T. Bishop of the Southern Brick and Tile Company is president; H. H. Frazer of the R. B. Tyler Company, vice president; Isaac Tyler of the Tyler Building Supply Company, secretary, and Karl S. Markendorf of the Union Cement and Lime Company is treasurer.

PURPOSE OF THE NEW ORGANIZATION

This is a benevolent organization, as one of the leading members described it, designed to boost brick as a building material in every legitimate way, and will not violate the law either in spirit or letter. On the basis that when everybody is boosting brick everybody will find brick easier to sell, there is every belief on the part of the members that the association will be of great aid to the business in Louisville. Weekly lunch-meetings are being held at the Tyler Hotel, incidentally one of the high class examples of brick, terra cotta and tile construction in Louisville. General pro-brick topics are considered at this meeting and plans which can be utilized in furthering brick sales are discussed. From time to time there are officers of the companies present who are called on to make addresses.

The association will take advantage of every opportunity to boost brick as the premier building material and very recently scored its first "bull's eye" when a conspicuous fire in Louisville pointed to brick as a fire resistant thru the publication of an advertisement in the local newspapers calling attention to the fire and to the fact that a brick structure directly in the path of the flames, which were so hot that they curled railroad rails and melted metal fittings on buildings some distance away, passed thru the fire undamaged. The fire was thought to have been the worst experienced by Louisville in many years and attracted a great deal of attention. It destroyed the Kentucky Public Elevator Company's grain handling plant with a loss approximating three-quarters of a million dollars.

SPIRIT OF AD. COMMENDABLE

Incidentally, the spirit which characterized the advertisement is worthy of attention. It happened that part of the plant consisted of sixteen reinforced concrete grain tanks, holding thousands of bushels of grain each. They were on a favored side, but were so badly damaged that, in making plans for rebuilding, the general manager of the company stated they would be torn down and replaced.



Recent Advertisement in Louisville Newspapers Calling Attention to a Big Local Fire and the Indestructible Quality of Brick In Connection Therewith

Of them the official report of the inspector of the actuarial bureau said:

"The reinforced concrete grain tanks nearest the elevator were spalled to a considerable extent, and in a few places to a depth of 3½ inches, tho these were fifty feet away, parallel with the wind and had no water thrown on them." The same report, referring to the brick grain drying plant, which is the structure referred to in the brick advertisement, said: "The fireproof grain dryer, tho almost directly in the path of the wind, was probably not damaged more than fifteen per cent.," this loss referring to contents as well as structure. While on the subject, it may be added, also, that the inspector in question called attention to the fact that burning brands fell like snow over a radius of a mile, and said: "It was the finest indictment against shingle roofs ever delivered in Louisville." Such a condition of affairs presented an opportunity for comparisons, but sticking close to the policy of unquestionable fairness which it has made its watchword, the organization refrained.

* * *

High-Grade Chinaware from Southern Kaolins

Under the stress of economic conditions due to the war, American chemistry has added another triumph to its long list in the development of an American chinaware industry that promises to be independent of foreign sources of materials and an industry of considerable magnitude.

The announcement that this had been accomplished was made on March 11 by Van H. Manning, director of the Bureau of Mines, under whose direction the difficult problems in chemistry have been successfully worked out in co-operation with a number of potteries.

"For years American manufacturers of tile and white chinaware have been dependent for their high-grade material on the importation of foreign kaolin, chiefly in the form of English china clay," said Mr. Manning, in telling of the wonderful impetus given to this industry by the discoveries of the Bureau of Mines.

"At the same time there were known to be available in Georgia and South Carolina large quantities of kaolin of a high degree of purity, except that it contained certain impurities that made it useless except for the paper trade and for some lower grades of pottery. The Bureau of Mines took up the question of the separation of these impurities from the kaolin and succeeded to such an extent that it is now comparable with the best English fine clay for many pottery purposes. As a result of the laboratory experiments a co-operative agreement was made with a Georgia kaolin company and plant built in accordance with the facts discovered in the laboratory, this plant succeeding in purifying many tons of kaolin at a cost less than 50 cents a ton, producing a material which has a market value nearly twice that which could be obtained for the kaolin for the purposes to which it was previously put. This purified white china clay has already been used extensively in potteries with much success. It has been shown that in vitreous chinaware, this purified American kaolin can be successfully substituted for all of the ball clay heretofore used and for at least fifty per cent. of the English china clay. Better still, in the tile industry whiter and stronger tile can be and are being made from this treated Georgia kaolin and American feldspar by substituting them entirely for the English china clay and Cornwall stone heretofore used. America should, accordingly, be largely independent, and with further experiments, probably entirely independent of imports of foreign material for the white ware business."

Paving Brick at the Ann Arbor Convention

Following out its program to give as many sections of the country as possible an opportunity to learn of the merits of brick paving, the National Paving Brick Manufacturers Association, Cleveland, Ohio, at this writing is preparing an extensive exhibit for the municipal convention to be held at Ann Arbor, Mich., the latter part of this month. Besides an elaborate exhibit there will be illustrated talks by Will P. Blair, secretary of the association. A miniature gallery of photographs showing brick paving laid under old methods and the latest ideas in construction will be a part of the exhibit.

Among the advantages of a brick road to be cited by Mr. Blair will be the success of the new system just put into effect by the American Express Company, which now has a fleet of six motor trucks running from Cleveland to Akron over the new highway between those cities.

The publicity department of the National Paving Brick Manufacturers Association is extending its advertising activities into still wider fields by the preparation of special copy for advertising in the annual proceedings of various state engineering societies and the annuals of colleges. This is a new departure in paving brick advertising.

Of special significance to paving brick manufacturers interested in the progress of their product in Ohio, is the announcement from Columbus that Governor Cox is about to appoint a highway commissioner. A. R. Taylor of Finlay, engineer of Hancock County, is mentioned strongly for this post. D. Moomaw, assistant engineer of Cuyahoga County, also is spoken of as a possible candidate.

Opposition to the use of wooden blocks for the paving of Euclid Avenue, from East Twenty-second Street to East Fortieth Street, Cleveland, is being made by the Ohio Bureau of the N. P. B. M. A. This strip of the main thorofare of the "Sixth City" is part of the general paving improvement plan for which a $3,000,000 bond issue was passed last fall. The fight for use of brick on this avenue, one of the greatest traffic carriers in the country, is being conducted by Leon Herrick, local engineer for the bureau.

* * *

Automobile Service Stations of Hollow Tile

A recent issue of "National Petroleum News" published some interesting pictures of automobile service stations constructed of hollow building tile. Beautiful effects were shown to have been attained in both cases illustrated, and in describing the structures, the "News" stated that oil companies should take into consideration, in planning and building service stations, that the style of architecture employed plays an important part. Further, that with the present high prices of building materials prevailing, hollow tile, brick and stucco constitute as cheap a structure as any that can be designed. The great advantage of this combination of materials is that it lends itself easily to an attractive and harmonious style of architecture which may be determined by local conditions, making its use pre-eminently suited for service stations.

The first of the illustrations shown was that of a station at Houston, Tex., which is constructed of hollow tile covered with stucco and brick, and which is roofed with a red Spanish tile. The structure is very beautifully set off by a grove of oaks in which it is placed. The second illustration is that of a service station in Cleveland, Ohio, which was designed to be attractive in the midst of winter's snowy background and also when set off with flowers and shrubbery.

AMONG *the* POTTERIES

Expansion plans for the John Douglas Company, Cincinnati (Ohio) manufacturers of plumbing and sanitary supplies, were announced recently by Mr. Douglas, president of the concern. The plans include the refinancing of the company, thru an increase in the common stock and the issue of preferred stock, which has been underwritten by a syndicate headed by Channer and Sawyer, Cincinnati brokers. The company heretofore has been capitalized at $100,000, of which $30,000 was common and $70,000 preferred. This preferred stock is to be retired, the common stock increased from $30,000 to $350,000 and a new issue of $500,000 seven per cent. preferred stock authorized, making the entire new capitalization $850,000. The company plans to greatly increase the capacity of its potteries at Carthage. It is the possessor of a new process for making sanitary ware which has been perfected in the past three years, and the new kilns are to be built according to this modern process. The capacity of the plants will be tripled. The company has large contracts with the United States government, doing about sixty-five per cent. of the government work in this line. Its assets total over a million dollars. Besides the plant at Carthage, it has one on Poplar street, in Cincinnati and one at Trenton, N. J. It is planned eventually to concentrate all of the factories at Carthage. The management of the company will continue as at present.

NO LABOR TROUBLES ANTICIPATED

There is one bright spot in the pottery industry that is looked upon with a great deal of satisfaction, and that is the possibility of the elimination of all labor troubles within the craft this year. At the annual convention of the National Brotherhood of Operative Potters, which will be held in Atlantic City in July, the usual number of resolutions will be presented for consideration. It is remarked by many workers that little fear may be expressed over the possibility of resolutions seeking an increased wage. It is pointed out that the pottery workers in the general ware branch were recently granted an increase in wages, and that, if steady work is possible, every one connected with the trade would be entirely satisfied with the present size of the envelope. The manufacturers are working under a great handicap just now on account of the shortage of raw materials, the increased costs of these materials, and the shortage of gas and of freight cars. The gas shortage so far this year has caused a loss in actual production of from 250 to 300 kilns, which it will be impossible ever to regain. Selling prices of finished products remain normal, and buyers clamor for more merchandise.

CHINA DECORATORS' ORGANIZATION FORMED

Probably the strongest organization embracing any of the crafts of the pottery industry, independent of the National Brotherhood of Operative Potters, is the American Association of China Decorators, which has established national headquarters at East Liverpool, Ohio, with an active salaried president in charge. The association, which is incorporated under the laws of Ohio, now has a membership of about 1,000 persons, including workers of all branches of the decorating department of the potteries, such as gilders, liners, tinters, decalcomania workers and gold stampers. The organization has for its purpose the advancement of the art, better working conditions for the china and semi-porcelain decorators and the adjustment of differences between the employer and the employe. The association was also formed for social purposes. Harry J. Hancock of East Liverpool has been elected national president of the organization and assumed charge of the office at the beginning of the present year. The association has members in East Liverpool, Sebring, East Palestine, Carrollton, Salem, New Castle, Kittanning, Commonsburg, Akron, Wheeling and other cities where potteries are located.

SAYS WAR HAS DEVELOPED LATENT INGENUITY

A. V. Bleininger of the United States Bureau of Standards was the principal speaker at a meeting of the Pittsburgh Purchasing Agents' Association recently. He discussed "The Use and Properties of Clay Products," saying, in part, that since the breaking out of the European war American manufacturers in that industry have developed to a state of perfection heretofore deemed impossible. Among other things, Mr. Bleininger said: "Clay products used in the manufacture of glass and table china, formerly imported, are now made in great quantities in this country. The war has done much to develop the latent ingenuity of American manufacturers, who are now making thousands of articles which heretofore were purchased in foreign countries."

POTTERS GAIN CONCESSION FROM RAILROADS

Henry P. Knoblock, chairman of the transportation committee of the United States Potters' Association, and his colleagues have finally induced the railroads to recognize the needs of the potteries for raw materials, and have secured an important concession. In the future if a member of the association makes a demand thru Secretary Charles F. Goodwin for the forwarding of material tied up by embargo, the railroads have promised that the material will be forwarded promptly. This move was made necessary because much needed raw materials for the potteries have been subjected to long delays thru the thousand and one embargoes imposed by the carriers.

NEW SANITARY PLANT FOR PACIFIC COAST

The Universal Sanitary Manufacturing Company, which operates a plant at New Castle, Pa., has made arrangements for the construction of a large sanitary ware plant at Torrance, Cal., which, according to present indications, will be completed in about six months. Charles J. Kirk, president of the company, was recently in California arranging for the erection of the buildings. The plant is to be very similar to the one at New Castle and will employ continuous muffle kilns in the burning of its ware. Seemingly inexhaustible supplies of clay are available and it will be possible for the new plant, because of the climate, to operate thruout the year. According to Mr. Kirk, the output of the new factory will reach the two million dollar mark in two years, and in preparation for this immense production, an "expansion joint," in the form of ten additional acres of land, has been provided.

SUBMARINE CAMPAIGN CURTAILS CLAY IMPORTS

Serious shortage of raw materials in the pottery trade is admitted by all manufacturers. Germany's submarine campaign against ships leaving English shores may in time work havoc with the pottery industry since considerable English china and ball clay is used in the domestic pottery industry. Importations of these materials are at a lower level now than ever before, and while it is true that thousands of

acres of American china and ball clay are available for immediate use, many pottery manufacturers admit that they prefer the imported clays. On top of the decreased imports of these clays is the confirmed report that some American clay mines are closed indefinitely on account of labor troubles and a shortage of cars.

ONCE PROMINENT POTTERY FIGURE DIES

John R. Dos Passos, who engineered the plan to consolidate the American potteries into a trust several years ago, died recently in New York at the age of seventy-three. Mr. Dos Passos became particularly prominent in the days of promotion and consolidation of industries in 1897, when he did his best to bring the potteries of the country into a consolidation. His efforts covered a period of several months, but finally failed because a real basis for the exchange of operating properties for stock in the consolidated companies could not be satisfactorily arranged. He was very well known among the East Liverpool potters and always manifested a keen interest in the welfare of the industry.

MANAGERS FIGURE ON CHANGE FROM COAL TO GAS

It is stated in East Liverpool that a number of pottery managers have called in engineers with a view of ascertaining the best plan for changing the kilns from gas to coal-fired. Some of the plants are not located on railroad switches, but this difficulty can be overcome, in most instances, by the construction of aerial tramways and other mechanical devices for quick transportation of coal. At some of the other plants it is declared that plans have already been made for erecting elevated railroads, by which the coal can be economically distributed to the kilns. The coal situation is discouraging, but it is pointed out that since many contracts expire with April 1, the market may present opportunities which are not predicted.

EARTHERNWARE SHORTAGE THREATENING

A shortage of earthenware before the end of the year is now a certainty, unless conditions improve very soon. Demand is increasing steadily, because of the lack of imported ware, and stocks are not increasing in proportion. The suggestion has been made that greater producing capacity would pay the man with the foresight to enter the "game" on a big scale. However, there is no telling how long the war is going to last or how soon Europe will be back in the market with an abundant supply of goods, so the best everybody can do is to make the best of an unparalleled situation, and let it work out for itself.

POTTERS' DISCUSSION CLUB PROVES HELPFUL

The Potters' Discussion Club will meet in Pittsburgh this month to hear papers on clay shop efficiency and kiln firing. "The manufacturers should have formed this sort of an organization years ago," observed a well-known potter. "We have thus far held two meetings, and I have learned a lot. At our last meeting I picked up some pointers that helped me to solve a manufacturing problem that has been worrying me for a long time. The meetings are certainly of practical benefit to members, and there should be a hundred per cent. attendance at every gathering."

JERSEY POTTERY CELEBRATES TWENTY-FIRST YEAR

The Monument Pottery Company of Trenton, N. J., one of the largest potteries in the country, and operating twenty-four kilns, has just celebrated its twenty-first anniversary and elected officers as follows: President, John F. Wolff; vice president, Harold Wolff; secretary, George E. Hoffman; treasurer, F. J. Wolff. John Clifford, in conjunction with the officers, are the stockholders of this company as well as the board of directors. This concern started business with one kiln and now has a plant which covers about six and a half acres.

PERTH AMBOY OPERATIVES ELECT OFFICERS

The Potters' Organization of Perth Amboy, N. J., recently elected the following officers: President, Nels Hanson; vice president, William Wilson; financial secretary and treasurer, Anton Anderson; recording secretary, Hugh Church; guard, Carl Hanson; inspector, Chris Hanson; trustee, Joseph McFadden; statistician, Peter Larsen.

NEW CALIFORNIA COMPANY INCORPORATED

The Monterey Potteries, with a capitalization of $50,000, has been incorporated by M. Platts, who was formerly connected with a Richmond (Cal.) pottery, and who will be manager of the new concern. T. A. Work, W. A. Lillie, J. A. Sparolini and S. W. Mack are associated with Mr. Platts in the new enterprise. All except Mr. Mack are of Monterey. Work on the main building, which is to be 90 by 230 feet, was begun recently and it is expected to have the plant operating within ninety days. The new works will specialize in yellow ware.

PRICES ON VITREOUS PORCELAIN WARE ADVANCED

Manufacturers of vitreous porcelain ware, such as vitreous hotel china, have advanced their selling prices, in several instances, to full list quotations. For years past, these manufacturers have been selling their product at from ten to fifty per cent. discounts from published lists. The opinion is growing among buyers, however, that in due time there will be an easier market, and that after peace has been declared, manufacturers will be in a position to revise their selling lists. It is admitted, however, that selling prices will never again touch the low market of a few years ago.

AKRON CONCERN BUILDING A CLEVELAND PLANT

Announcement has been made that the Vitreous Clay Package Company of Akron, Ohio, will start immediately the erection of a new six-kiln pottery plant near Cleveland for the manufacture of all kinds of clay marbles. The business is almost exclusive with this company, and it is the only concern of the kind manufacturing marbles for all purposes, either for the children or for the grinding of powder. The contract for the kilns has already been awarded, while those for the buildings are now in the making. It is said that much of the machinery now in the Akron plant will be removed to the new factory.

POTTERS FIGHT EMBARGOES ON RAW MATERIAL

Pottery manufacturers are making a strong fight against the embargoes placed by railroads on the shipment of raw materials. Thus far, they have made but a slight impression on railroad freight men. However, indications are that the situation, like that of fuel, will clear with the breaking of cold weather. It is reported that the question of moving raw materials has at last been carried to the President and that he has determined to give the Interstate Commerce Commission and the railroads a last chance to get together on some plan for clearing side tracks and terminals of blockades.

INTERESTING ITEMS FROM EVERYWHERE

Pottery manufacturers, especially those who make a line of semi-porcelain ware, have been hard hit within the last fortnight by the rapid advances of raw materials. The submarine warfare has caused a marked shortage of imported clays, and costs of these lines have shown large advances. Even domestic materials entering into the manufacture of pottery have shown marked advances

of late, and in several instances, the threatened war clouds here have been the direct cause.

The Saxon China Company of Sebring, Ohio, has increased its capital stock from $150,000 to $650,000. The plant was recently sold by Fred Sebring to O. H. Sebring, representing the French China Company. The increase in capital was necessary because of extensive improvements that are being made to the plant. New kilns are now under construction. The Saxon pottery manufactures semi-porcelain ware and is under the management of Ray Sliff.

The Pollion Pottery, in Woodbridge township, N. J., operated by the only woman potter in the country, is now busy with a large order of art pottery. Mrs. Clara Pollion is working in conjunction with several New York sculptors on a most unique line of table and house pottery, as well as some high class work used in connection with landscape gardening. High color work is in vogue in New York and the Pollion pottery is working to that end.

Grafton, which is one of the growing towns of West Virginia, has not enough houses to go around, and President Thomas Carr of the Carr China Company has been calling the attention of investors to the fact that if they are going to build houses he would like to have them build several near his plant for the convenience of the working potters.

A shortage of help has also started to appear in some of the general ware potteries in the Upper Ohio Valley district. In the pottery business, there is work for all who seek it. Kilnmen are very scarce, and many more could be employed. It is possible that the National Brotherhood of Operative Potters will be asked by the manufacturers to extend some relief along these lines.

The Lapp Porcelain Company is the name of a new concern which will build a four-kiln electric porcelain plant at LeRoy, N. Y. Plans for the new plant have been completed and the contract for the kilns has been awarded. High tension porcelain specialties will be featured by this new concern.

The interest heretofore held in the Colonial Company at East Liverpool, Ohio, by George W. Meredity of Pittsburgh, Pa., has been taken over by Thomas Robinson. Mr. Meredity for years was president of the Colonial Company and Mr. Robinson was general superintendent of the plant. William H. Robinson is secretary and salesmanager.

Another decorating kiln is being erected at the Chester (Ohio) plant of the Edwin M. Knowles China Company which will be completed in a short time and placed in immediate operation. The additional kiln, when finished, will make three kilns for decorated ware at the Chester plant, all of which are of the double type.

Insurance adjusters have been settling the damage claims of the Potters Mining and Milling Company whose plant at East Liverpool was recently badly damaged by fire, and in a short time the work of reconstruction will be under way. The company desires to build up to its former capacity in the shortest possible time.

The newest entrant into the pottery field on the Pacific Coast is Harry Leon Wilson, better known as the author of the "Bunker Bean" and "Ruggles" stories which have appeared in the "Saturday Evening Post," than as a business man. Mr. Wilson has become interested in the Monterey Potteries of Monterey, Cal.

At a recent meeting of stockholders of the United States Pottery Company, Wellsville, Ohio, the following officers were re-elected: J. J. Purinton, president; G. F. Purinton, vice president; W. E. Brown, secretary and general manager, and B. F. Burford, treasurer.

Orders with the pottery manufacturers are heavy. Numerous plants have more business on file than can be shipped in six months, even if no more was received. Never before was activity in the trade so marked as it is now.

The Federal Porcelain Company, Carey, Ohio, has been incorporated with a capital of $100,000, to manufacture porcelain. The incorporators are: E. Edwards, David Kirk, Jr., R. G. Spencer, M. V. Spencer and W. H. Williams.

Lloyd H. Rockhill has been elected to succeed John Maddock as president of the Bellmark Pottery Company of Philadelphia, Pa. Mr. Rockhill entered the employ of the company fourteen years ago.

The Oakwood China Company, operating a one-kiln plant in East Liverpool, Ohio, has increased its capitalization from $15,000 to $150,000, according to a dispatch from Columbus.

Thomas A. Case, manager of the Canadian Pottery Company of Toronto, Can., has been in San Francisco for several weeks on a business trip. He reports great activity in Canadian industrial circles, despite the war.

It is currently reported in the western district that a new art pottery is about to be erected at Traverse City, Mich., and that native clay will be used in the manufacture of the product. Several East Liverpool men are said to be interested in the Michigan clay beds, but nothing definite is known about their movements at this time.

John Lasalle is continuing his efforts to erect a small white ware pottery at Roodhouse, Ill., and altho he is reported to have let the contract for the erection of three additional kilns, it will be a few weeks before work is started. The Roodhouse pottery was formerly engaged in manufacturing a line of cooking ware.

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Pottery and Progress—This Industry An Art

The fact that the pottery industry sprang from the evolutionary wants of the original inhabitants of this sphere and that it is the most closely associated of all vocations to man and nature; and is as old as the world itself, merely emphasizes the time-worn adage, that "Necessity is the Mother of Invention."

As has been said, a footprint of aboriginal man in a clayey soil may have given the idea of possibilities for useful purposes of clay-made vessels. Hence, we get our first potter, producing much needed, tho crude, vessels and utilizing this natural produce to lighten the weight of the struggle for existence. This case, while purely surmise, is nevertheless based upon evolutionary facts.

In literature, pottery and man have been associated closely from the earliest history to the present day, especially in the "Rubyatt," of the Omar Khayam, where the author uses the potter allegorically, as the Great Maker who molds his human forms from the clay of the earth.

So you see, from the first man to the present millions of men, pottery has followed the march of industry until today, sanitary pottery making represents the highest plane of service of any of man's creations for the good of mankind by making the congregation of thousands within our cities, a healthful, sanitary, cleanly and wholesome possibility. For without sanitary living conditions, our business houses, our schools, our hotels, our theaters and our homes would be impossible, and without them, advancement and life itself an impossibility.

Thus you see, to be a presser in a sanitary pottery does not mean simply to be a tradesman working for a

stipulated sum, but it means that you, individually, are taking an active part in the actual welfare of the world at large in producing an article that is absolutely indispensable if the world is to progress at its present rate.

When we stop to look into the matter seriously it is really an honor to be affiliated with a business or trade that makes for the betterment of ourselves and fellowmen—and that is just what it means to be a sanitary potter.

You are not making munitions or some like object of destruction, but producing a product that makes life a possibility—indeed, the highest service an individual can offer a community of fellow beings.

It is indeed remarkable that while other tradesmen in manufacturing plants are being rapidly replaced by machinery of higher efficiency and output, the potter has not been seriously affected by being supplanted by mechanical devices, which seems to indicate that to get a perfect high-grade pottery product, it is absolutely necessary that the brain, and the personal contact of the human hand are indispensable to the proper shaping up and kneading of this natural plastic product of old Mother Earth. In these days of substitution of clattering, clanking automatic action, it is most comforting to know that the voice of nature makes itself heard in the mercantile world.

So, if at times you feel like making comparisons with other tradesmen, remember that sanitary pottery making is both a trade and an art, protected by nature itself thru the ages, and protecting the highest product of nature—the human being—for ages to come.—*Earl D. Moore, in "The Anchor," issued semi-monthly for the betterment of the plant and the employes of the Thomas Maddock's Sons Company, Trenton, N. J.*

Brick Pavements in the Buckeye State

James R. Marker, secretary and commissioner of the Ohio Paving Brick Manufacturers' Association, has completed a full report of the work of that organization during the past year. The report is in the form of a chart showing the amount of brick roadway constructed during the year both inside and outside of municipalities. It also shows the number of square yards contracted for and constructed during the year, as well as that built which hung over from the former year's contracts.

The report shows the square yards of brick paving furnished by the nineteen members of the organization and that furnished by non-member manufacturers, and also shows that 123.08 miles of brick roadway were constructed by state aid and 136.02 miles by other agencies, making a total of 259.1 miles outside of municipalities. Counting in square yards, it is shown in the report that a total of 2,269,928 square yards were contracted for in 1916 and 1,777,796 square yards were delivered outside of municipalities. Inside of municipalities there was a total of 2,571,923 square yards contracted for and 1,984 square yards delivered during the year. Prior contracts which were delivered during the year were 299,175 square yards outside and 309,692 square yards inside of municipalities. The total number of square yards delivered in 1916, outside of municipalities, was 1,476,971 and inside of municipalities, 2,294,635. The grand total contracted for in 1916 was 4,837,851 square yards, 3,771,606 of which were delivered.

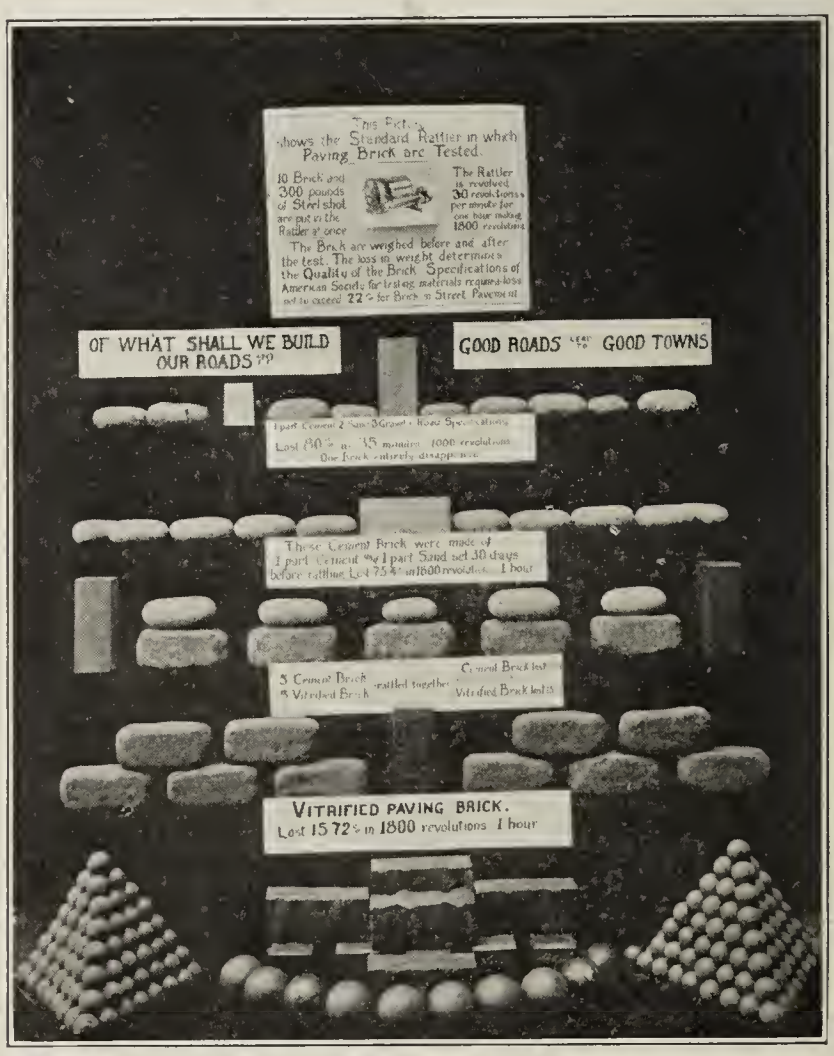
Taking the reports by counties it is seen that there were 12.3 miles of brick roads constructed in Hancock county, in the northwestern part of the state, in what has been known as the limestone country. Thus it is seen that brick for road construction is taking the place of limestone even in localities where the latter material is very plentiful. In Columbiana county there were 26.08 miles of brick roadway constructed and in Summit county, 19.58 miles. In Ashtabula county the report shows the construction of 33.7 miles of brick roads.

What a Rattler Does to Cement Brick

An example of very unique and forceful publicity work on behalf of vitrified paving brick was recently afforded by the Crawfordsville (Ind.) Brick Company, when it publicly displayed in a store window on one of Crawfordsville's main thorofares, the results of a comprehensive test which it had made upon the abrasive or wearing qualities of cement and vitrified brick.

In conducting its test the company made up a number of concrete brick the same size as the vitrified paving brick, using for one set a mixture of one part of cement, two parts of sand and three parts of gravel—the mixture specified for concrete roads. In making the other set, a mixture of one part of cement and one part of sand was used. These cement brick were then placed in the standard rattler used in testing vitrified paving brick.

The result of the first test, exhibited on the top shelf in the display, showed that the concrete brick made from road specifications lost an average of eighty per cent. in only 1,000 revolutions—and one of the brick disappeared entirely. When it is considered that a standard test calls for thirty revolutions per minute for sixty minutes, making 1,800 revolutions in all, the tremendous loss suffered by the cement brick in a little over one-half of the regular test forcefully portrays the inability of that material to withstand the wear of continuous traffic. Had the test been continued to the full 1,800 revolutions, it is not at all improbable that the ten brick would have entirely disappeared. On the second shelf, in the middle of which is



Window Display of the Crawfordsville (Ind.) Brick Company Showing Comparative Effects of Rattler on Clay and Cement Paving Brick

shown a concrete brick before being rattled, are shown the ten concrete brick of one to one mixture after they had been subjected to the rattler test, and had lost 75.4 per cent. of their original weight during the full test of 1,800 revolutions.

The third shelf shows five concrete brick of one to one mixture and five vitrified brick put in the rattler and rattled together. In the prescribed time the concrete brick lost 70.8 per cent., while the vitrified brick dropped but 15.2 per cent. of their original weight. Not only were the concrete brick used in this test of a richer mixture than is used in concrete road work, but they had been allowed to set six months before being rattled.

On the fourth shelf in the picture are shown ten vitrified brick after they have been subjected to the rattler test. In the 1,800 revolutions but 15.72 per cent. of the original weight was lost.

Another feature of the exhibit was the attractive arrangement of the seventy-five pounds of 3¾-inch steel balls and the 225 pounds of steel balls 1⅞ inches in diameter, which were used in the rattler test.

* * *

Difficult Problem of Our Forest Reserves.

An editorial of interest to the clay products manufacturer appeared in the February 3 issue of the New York "Sun" and reads as follows:

"The Federal Forest Service has just published the results of an investigation undertaken some time ago into the forest resources and the lumber business of the country. One of the chief purposes of the investigation was to find out whether the present policies for conserving the nation's forest wealth go far enough.

"Two important changes have taken place in the last ten years in the conduct of the lumber business. The exhaustion of timber supplies nearest to the bulk of Eastern consumers has necessitated the transportation of lumber from greater and greater distances, and social and economic conditions have reduced the proportionate use of lumber in the United States. The use of other structural materials within the last ten years is estimated at one-fifth of the present yearly cut of lumber and the per capita consumption of lumber has decreased nearly one-fourth.

"The effect of these changes is felt principally in the West, whence comes the great supply of lumber. The freight rates now take about one-fifth of the retailers' or the consumers' price and thus represent a considerable item in the present high price. The reduction of the use of wood in structural work, however, has had the greatest disturbing effect in the trade. The owners of hundreds of billions of feet of timber acquired cheaply a few years ago from the public domain have been caught with a heavy burden of timber land on their hands. This private ownership, hard pressed to carry these staggering quantities of timber during the long periods which must necessarily elapse before they can be converted into lumber, is now sacrificing them, according to the report, in part by a wasteful use because of financial exigencies.

"There is no surplus of forest resource above the country's needs; instead there is a lack of growing forests to take the place of the virgin timber being cut away. Little is being done to restock the forest lands that have been logged over, and the total use of wood in the United States exceeds by a great deal the total of new growth of its forests. Summing up these conditions, the experts of the Forest Service believe that the present waste in the use of our natural forests will inevitably tell in the future cost of lumber, paper and all other products that shall be manufactured from wood.

"The present unstable condition of the lumber industry makes it unable to do much toward the renewal of the forests it has destroyed. In fact here is the pith of the report:

"'A national mistake was made in such rapid and wholesale passing of title to timber lands in the public domain, beyond all immediate needs for local or industrial development.'"

"The Forest Service declares that the carrying of the burden of these future resources should have been a public rather than a private function. But the 'obvious remedy' which it proposes, 'that of taking part of the Western timber lands back,' would seem to present many difficulties in its application."

* * *

New Refractories Company Acquires Plants

A deal involving $800,000 has been consummated whereby the Johnstown (Pa.) plant and properties in Mifflin, Juniata and Huntingdon counties, are purchased from A. J. Haws and Company by the Haws Refractories Company. The deeds and mortgage of $700,000 were filed at Edensburg. One of the deeds conveys from A. J. Haws and Company to Harry L. Tredennick all the property owned by the old fire brick corporation, and the second deeds the property from Tredennick to the new corporation. The mortgage for $700,000 is given by the Haws Refractories Company to the Johnstown Trust Company.

The purchase of the Haws interests by the new corporation is the first step in the campaign of plant extension to be taken by the Haws Refractories Company, which will entail the expenditure of several hundred thousand dollars, making the operations of $1,000,000 valuation. A new plant will be erected at the Lewistown Narrows, the contract for which was awarded recently.

The Haws Refractories Company was organized several months ago to take over the properties owned by A. J. Haws and Company. The founder was the late A. J. Haws, one of the pioneer brick manufacturers in that section of the state.

* * *

New and Amended I. C. C. Conference Rulings

The Interstate Commerce Commission has just adopted a new conference ruling and has also amended Conference Ruling No. 354. The new ruling is as follows:

"Where a shipper petitions the Commission to require a carrier to establish rates dependent upon the declared value or the agreed value of the property transported, a hearing will be had and an order will issue based thereon.

"Where a carrier petitions the Commission to be authorized to establish rates dependent upon the declared value or the agreed value of the property transported, the Commission will investigate the reasonableness and propriety of the proposed rates in such manner and by such means as it shall deem proper, and where the Commission finds no cause for refusing to permit the carrier to establish such rates, an order will be entered granting the desired authority conditioned on due filing thereafter with the Commission of any tariff schedules pursuant to such order. Any rate so authorized by order of the Commission upon the petition of a carrier will be subject to suspension on protest and to attack on complaint in the same manner as any other rate carried in a tariff duly filed with the Commission." The amended conference ruling is as follows:

"That it is not lawful for a carrier subject to this act to issue thru bills of lading under an arrangement with a water or other carrier for a continuous carriage until rates applicable to such carriage or shipment, under schedule lawfully filed with this Commission by such water or other carrier, shall have become effective."

Recent Freight Reparations

The Interstate Commerce Commission has allowed the following brick reparations:

The Harbison-Walker Refractories Company vs. the Pennsylvania Railroad Company et al. A refund of $90.83 was allowed on account of unreasonable charges on five carloads of fire brick shipped from Harbison-Walker plant No. 8, in Pennsylvania, to Dublin Street Station, Waterbury, Conn., during the period from November 16, 1915.

Cape Girardeau Press Brick Company vs. the St. Louis and San Francisco Railroad Company. Reparation amounting to $218.26 was allowed on account of unreasonable charges collected on seven carloads of brick shipped from Cape Girardeau, Mo., to Wilson, Ark., March 11, 1915.

The Queens Run Fire Brick Company has been awarded reparation against the Pennsylvania Railroad Company et al. amounting to $670.31. The refund was allowed because of unreasonable rates applied on forty-nine carloads of fire brick shipped from Lock Haven, Pa., to Hopewell, Va., during the period from November 21, 1914, to September 23, 1915.

Copy Fabric Designs from Ancient Clay Pieces

A feature of a recent remarkable display of fabric designs brought from Guatemala, Central America, to the United States, was one taken from a clay cylinder so old that no one can even guess at the time when it was made. This cylinder was probably used to print designs upon the skin much the same as some Indians tatoo. The design itself as applied to the fabric consists of a circle perhaps two and one-half inches in diameter made up of a number of different symbols whose meaning is lost. It is said to be the oldest design on clay ever found. It is known that the ruins wherein the cylinder was discovered are older than the Babylonian ruins from which so many tablets have been taken.

Another design in this remarkable display of fabrics was taken from a clay disc found in the same locality as the clay cylinder already mentioned. This disc is about one and one-half inches in diameter with undeciphered symbols inside the circle. These designs have been exactly reproduced on the fabric and are attracting a great deal of attention among designers and users of fabric.

SEEK *to* KNOW COMPARATIVE COSTS *on* COAST

IT HAS BEEN PROVEN that brick houses can be built at from twelve to six per cent., and even less, above the cost of frame in many parts of the country. It is not known, however, whether these figures will apply to conditions in California, but it will be known within three or four months for a group of Golden State clay products manufacturers have banded together and have offered generous prizes for the best six plans of a small detached house and accompanying garage suitable to climatic and landscape conditions of California. The outer walls of both buildings are required to be designed for brick construction, trimmed with brick or terra cotta and to have an air space in the walls. The foundations are to be designed for brick and the roofs are to be covered with clay tile.

COMPETITION HAS APPROVAL OF ARCHITECTS

The above mentioned prizes, which consist of $500 for the first, second $300, third $150, fourth $100, fifth $50 and sixth $50, are offered in connection with an architectural competition, which has been made possible thru the courtesy of the editor of "The Architect." It is to be conducted under the patronage of the San Francisco chapter of the American Institute of Architects, the Southern chapter of the American Institute of Architects and the San Francisco Architectural Club. The competition has also been approved by the San Francisco sub-committee of the American Institute of Architects.

This competition, which is open to all architects and draftmen on the Pacific Coast, requires the house to be built upon a level lot in a town or suburb of a large city. The width of the lot is to be not less than fifty feet nor more than one hundred feet, with a depth not exceeding one hundred and fifty feet. The house will contain an entrance hall, living room, dining room, kitchen, pantries, porches and so forth, three main bed rooms with two bath rooms and two sleeping porches. There will also be one other sleeping room and bath for a servant. The garage will be provided to accommodate one machine, wash rack and so forth.

The total cost of the house, exclusive of the land, is not to exceed $8,500, which will include excavating, heating, plumbing, lighting fixtures, and so forth, but exclude planting or gardening effect. The total cost of the garage is not to exceed $750.

Designs are to be judged by a committee of three members of the architectural profession, one from the San Francisco chapter of the A. I. A., one from the Southern chapter of the A. I. A. and one from the San Francisco Architectural Club.

First consideration will be given to appropriateness of design in the aesthetic sense to the material employed and its fitness for location and environment in California.

Second, excellence in plan.

Drawings which do not reach the requirements of the program will not be considered.

The prize drawings are to become the property of "The Architect" and the right is reserved to publish or exhibit all or any of the others.

THE DONORS

The generous donations made by the following manufacturers of clay products have made possible the prizes to be awarded in this competition.

Alberhill Coal and Clay Company, Los Angeles.
Brick Builders' Bureau, San Francisco.
Brick Manufacturers' Association, San Francisco.
Fresno Brick and Tile Company, Fresno.
Gladding, McBean and Company, San Francisco.
Los Angeles Brick Company, Los Angeles.
Los Angeles Pressed Brick Company, Los Angeles.
N. Clark and Sons, San Francisco.
Pacific Sewer Pipe Company, Los Angeles.
Richmond Pressed Brick Works, Richmond, Cal.
Simons Brick Company, Los Angeles.
Standard Brick Company, Los Angeles.
Steiger Terra Cotta and Pottery Works, San Francisco.
The K. and K. Brick Company, Los Angeles.

It is the hope of these concerns that at least fifty thousand booklets, including all prize winning plans and several of those given honorable mention, may be issued and distributed thruout California and the Pacific Coast. It is the intention of the contributors to carry out some such plan and to determine by bids both for brick and for frame, the difference in cost and the per cent. of increase for brick.

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

An Interesting Bonus System Experiment

Three or four months ago a man who is well known in the industry was telling some of his colleagues of an experiment which he had conducted with a bonus system on his plant and which failed to give the desired results. It was attempted to make the bonus apply to the setters, tossers, transfer men and helpers, a sliding scale being established as follows:

Cars Set	Rate Per Car	Setter's Wages	Tossers	Transfer	Helpers
50	$0.25	$2.25	$2.12	$2.00	$1.75
55	0.27	2.75	2.61	2.31	1.81
60	0.283	3.24	3.00	2.52	1.98

It seems that the setting crew had been in the habit of placing fifty cars for which they were paid at the rate of twenty-five cents per car. The sliding scale, as may be seen, would give these men a rate of twenty-seven cents if five additional cars were set, the additional rate applying to the entire day's work, also for ten additional cars the rate was raised to 28.3 cents per car. It was found, however, that after the new system was inaugurated that the setting crew would quit after eight or nine hours' work, setting only fifty cars. The reason offered for no attempt being made to set more than that quantity was that it was worth as much to set the first five cars as the last five and, therefore, if it was worth twenty-seven cents per car to the company to have fifty-five cars set, it was certainly worth the same rate to have fifty cars set and that, furthermore, the crew would not set more than fifty cars until it received a straight car rate of twenty-seven cents. This, of course, threw a monkey-wrench in the machinery and resulted in the bonus system as it applied to any part of the plant, being a failure.

Proceeding further in a discussion of bonus systems as applied to brick plants, the above mentioned clayworker maintained that, in order to arrive at a permissible bonus, it is necessary to determine the percentage decrease in cost obtained by a percentage increase in production.

"Suppose," he said, "the cost of 40,000 brick per day is $5 per thousand, or a total of $200. If the men are working by the day, practically the only item of cost not affected by an increased production is the fuel, which amounts to say, for instance, $1.50 per thousand. Then an increase in efficiency of ten per cent. would give a production of 44,000 at a total cost of $206 or $4.68 per thousand—a decrease of 32 cents or 6.4 per cent. A fifty-fifty split would give the men 3.5 per cent. increase which, for a $2 a day man, would be six cents daily. That amount of increase is considered by most workmen to be too small to pay for the extra effort necessary."

Subsequently the speaker's attention was called to the increased profit which such an increase in production would show on account of the larger volume of business possible. A fifty-fifty split on that basis amounts to a little more than originally figured. The speaker then presented some revised data as follows:

"Suppose the 40,000 brick sell at $6 or a total profit of $40, then the profit at the same selling price on the 44,000, including that derived from the decreased cost of production, would be $58 or an increase of $18 (forty-five per cent.). A fifty-fifty split would give the men $9 per day or 6.3 per cent. each of the amount paid out exclusive of fuel, and the two dollars a day man would receive a bonus of twelve cents per day or about three dollars a month. The net profit would be increased about twenty-two per cent. However, in this connection, the two all-important questions are the maintenance of the selling price and whether three dollars per month will get a ten per cent. increase in efficiency.

"If the labor is on the piece-work basis, a decrease in cost per unit does not enter into the problem and the bonus must be figured entirely on the increased profits due to an increased volume of business.

"The savings in fuel and increases in the percentage of first-grade ware can be made subject to a bonus, but the amounts to be paid must be based on an increased revenue or profit due to increased efficiency."

The above data is presented to the superintendents or clay plant owners who read this department for the sole purpose of their edification. No attempt is made to determine why the clay products manufacturer in question failed with his attempt at installing a bonus system nor are his conclusions drawn in this connection defended. This has been left to our readers.

If anyone can offer suggestions looking toward the revamping of the plan outlined above, so as to make its application successful, or can throw any further light upon the requirements of the bonus system to make it successful, these will be gratefully received by the Editor.

* * *

A Monkey Wrench "Artist"

In discussing bonus systems and new ideas in the matter of handling men, a paving brick manufacturer told some of his fellow clayworkers the other day of an idea which he had tried out on his plant and which had proved successful.

It seems that on the plant in question the men were given an hour for lunch, during which time, of course, all of the grinding and molding machinery was shut down. This being the case, an unusual opportunity was offered for the inspection of equipment and for making small repairs which would save time and the loss of capacity were they allowed to run on into the afternoon before being attended to. This brick-maker said that he had chosen one man from his crew, who was a good monkey wrench "artist," and allowed him an extra hour's pay per day for a half hour's work inspecting the machinery while the other men were resting after lunch. There was sufficient time after this man had his lunch, to make a thoro inspection of all of the machinery while it was shut down.

The result of this practice was soon found to be beneficial; a broken part discovered on a dry pan averted what might have been a serious mishap, while the tightening of bolts here and there often saved much time and lost capacity. The monkey wrench "artist" was delighted with his special task, the only disturbing element to his peace of mind being the reason for the firm allowing him to "put one over" on it.

This is just one of a number of innovations which a superintendent can inaugurate on his plant that will result in keeping the capacity up to the high water mark during these times of unparalleled demand and labor shortage .

Elevator Bells

"Every elevator in the factory," says "The Anchor" (issued semi-monthly for the betterment of the plant and the employes of the Thomas Maddocks Sons Company, Trenton, N. J.) "has been equipped with factory signal bells. These bells have been installed at the request of the State Department of Labor as a safety precaution.

"These bells will eliminate the necessity of yelling up a shaft to ascertain if the elevator is in use. Just push the button if you want to use the elevator, and if it is in use, it will be the duty of the user to let you know so that it will be unnecessary for you to look up or down the shaft in search of the car.

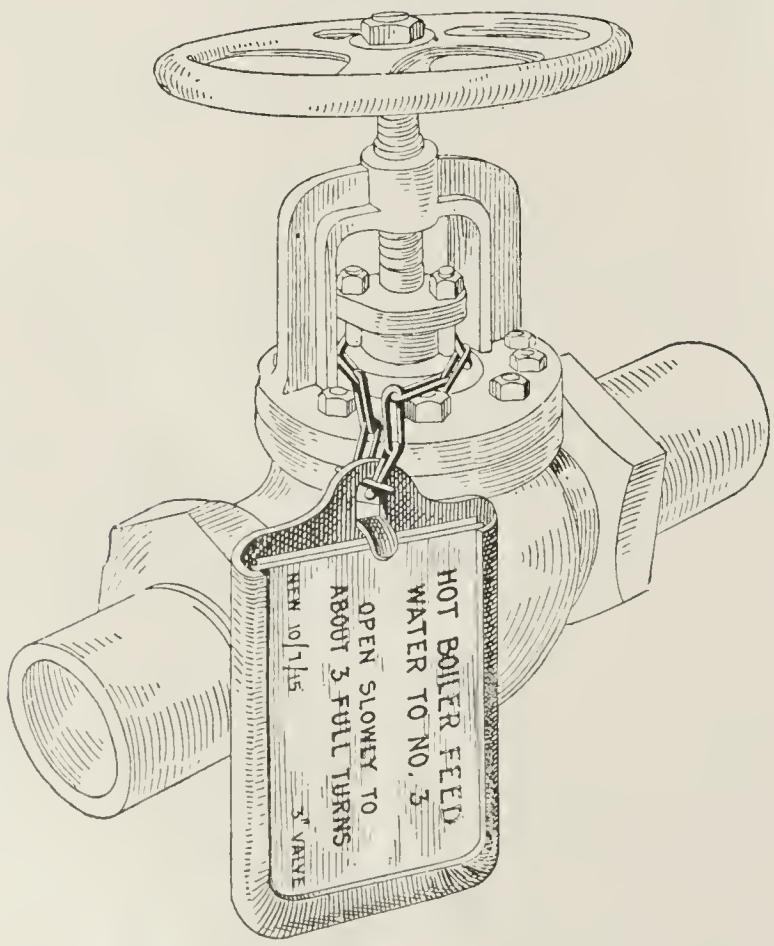
"Let every user of elevators in the factory follow out this procedure.

"It is in the cause of SAFETY FIRST."

Such a plan as is mentioned above is worthy of commendation and might well be followed in other clay plants. Every once in a while we hear of some unfortunate workman having been beheaded in the act of looking up an elevator shaft to locate the elevator. Accidents such as these can be avoided by the installation of electric signal bells.

Identification Tags for Valves

"The frequent changes of help in our main plant caused much confusion and resulted in many mistakes in operating valves on the maze of small piping," writes M. A. Smaller in a recent issue of "Poker," "so we purchased a



An Aluminum Identification Tag, Attached to Valve As Shown Above, May Prevent Many Costly Mistakes

lot of aluminum tags with protected white writing spaces —somewhat on the order of the ordinary trunk or baggage tags. These were attached, by light chains, to the bodies of the valves thruout the plant, with an inscription as to the service of the valve, its size, make, date installed and any other special instructions thought necessary."

The idea possesses unusual merit and might easily be adopted with profitable results by clay products manufacturing plants which seem to encounter trouble in teaching the men the proper use of the many valves thruout the plant.

Coal-Burning Data of Value to Clay Plants

"Combustion in the Fuel Bed of Hand-Fired Furnaces" is the title of Technical Paper 137, by Henry Kreisinger and others, which has just been issued by the Bureau of Mines of the Department of the Interior, Washington, D. C.

The main object of the investigation was to determine the conditions governing the process of combustion in the fuel bed of a hand-fired furnace. The results of this investigation furnish data for correct design of coal-burning grates and furnaces and their efficient operation. They also cast light on the important problem of clinker trouble as related to fusibility of ash. They further indicate the possibility of a high rate of gasification of coal in gas producers.

The first part contains general information on the combustion of coal in furnaces. What combustion is and how the process of combustion takes place is explained, also how much air is needed to burn one pound of coal and how the air and the coal are brought together to effect combustion. The method of feeding coal and air in four types of commercial furnaces is shown and discussed.

The second part contains the description and the results of about fifty tests made in a small, experimental, hand-fired furnace, which was designed for an accurate study of the processes of combustion in the fuel bed. Provision was made for taking gas samples and temperature measurements at various depths in the fuel bed. Three kinds of fuels were tested in this furnace, namely, Pittsburgh coal, anthracite coal, and coke. The rate of combustion was varied from 20 to 185 pounds of fuel per square foot of grate per hour. Two thicknesses of fuel bed were used—six-inch and twelve-inch. The air supplied thru the grate was measured with an orifice.

The third part discusses the investigations described in the second part of the report ,and includes about forty charts that show the composition of the gases and the temperature at different depths in the fuel bed of a hand-fired furnace, and various relations between the air supply and the rate of combustion.

Many deductions are drawn from the charts, and the significance of these deductions in the operation of industrial furnaces is shown. Many useful suggestions on the operation of such furnaces are offered.

The fourth part contains miscellaneous data on the composition of gases rising from the fuel bed of a hand-fired furnace under a steam boiler and two different types of stokers. It also contains a short discussion of the bearing of the results of the experiments on the operation of gas producers and explosions in boiler furnaces.

Copies of this technical paper may be obtained free of charge by addressing the Director of the Bureau of Mines, Washington, D. C.

During the past year, it is announced, more than 175 different clays found in New Jersey have been examined in great detail. In one series of tests alone between 6,000 and 7,000 specimens were accurately weighed to a hundredth of a gram, equivalent to .000353 of an ounce.

QUESTIONS *and* ANSWERS

The Best Authorities in Every Clayworking Branch are Called Into Consultation—Their Advice is Free to You, Thru These Columns

QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held in confidence, and no letters will be forwarded them without first being scrutinized.

Preparing Samples for Trunk Displays

815. *Illinois—We have quite a few calls from our agents for slabs representing the face of our brick for use in trunk displays. We have tried making these up by cutting the slabs from the brick when green, but this operation apparently so changes the brick that we do not get a correct representation of the actual face.*

If we knew of some way of cutting the slab from the actual brick it would solve the question. We have tried doing this but as yet have not found any way but that is out of the question on account of the item of expense. We know other manufacturers do this and wonder if you would advise us on this matter.

We note that your experience in cutting the slabs from the brick in the green state has shown that this method of producing them is practically impossible. This tallies with the results which other face brick manufacturers have had with this same method.

Naturally, the biggest objection to the results obtained by a process such as you mention above is that the slabs do not correctly represent your line of brick. What you are trying to do is to furnish the dealer with a sample of the brick which you have in stock and the only successful way of doing this in connection with trunk displays is to take representative brick from the yard, break off the backs in much the same way as a bricklayer does with his trowel and then send them to the nearest stoneyard to be ground on a rubbing bed to the desired thickness.

In doing this it may be necessary for you to build a so-called "cradle" which is nothing more than a wooden device for holding the brick while they are being ground so that they may all be finished to the same thickness. This method is followed by a number of the large face brick manufacturers and it seems to be about the only way of making up samples for displays such as you mention.

If you have not tried out the plan which we have recommended, we would suggest your experimenting with one set of samples, getting some idea of the expense of preparing same before promising all of your agents material for trunk displays. If you find after a little experimenting that you can furnish these specimens for a nominal figure, it would be safe to offer them.

We are inclined to believe from your letter that you have already tried a plan such as this and learned that samples for trunk displays are rather expensive. If this is the case, then the only answer we can give you that will be of any value is that this is the way in which other face brick manufacturers handle this particular matter.

Looks Like Our Old Enemy—Scum

814. *California—We make a stiff mud brick and have a great deal of trouble with white flashes on the brick. Can you suggest a color that would eliminate these flashes?*

It looks as tho your trouble is one that is as ancient as brickmaking itself—or at least, as old as artificial drying and the burning of coal. In other words, we believe that your brick are "scumming." The white flashes which you see are nothing more nor less than efflorescence, which is another word for the same thing. The way to eliminate these white portions, or "flashes" as you call them, on the brick, is to get at the seat of the trouble, which is caused by salts in the clay or in the tempering water. The salts are developed sometimes in the dryer, while again, they may not show until the brick are burned, and again, many instances are known where the scum does not show until the brick have been built in the wall.

Professor Chas. F. Binns, Director of the New York State School of Clayworking and Ceramics at Alfred, N. Y., wrote an article entitled: "Efflorescence and How to Stop It," which appeared in the November 18, 1913, issue of "Brick and Clay Record" and which is given below. We believe that a careful reading of this article will throw considerable light on your trouble and aid you in eliminating same.

Efflorescence and How to Stop It
By Charles F. Binns

It seems that this question will not down. Notwithstanding all that has been said and written upon it in recent years, the inquiry appears with persistent regularity, "How shall I prevent my brick from scumming?" Various answers —some correct, some incomplete and some misleading—are given from time to time, and for this reason, it appears opportune to give once more a simple and explicit account of the phenomenon and the way it may be cured.

It has been pointed out by Lovejoy and others that by far the most numerous cases of scum occur in the dryer—the burn only showing up what was already on the brick when they were set in the kiln. This being the most unusual condition, it will be dealt with first.

Most clays and shales already contain substances which are soluble in water. These are sometimes chlorides, such as common salt (chloride of sodium) or chloride of calcium.

It is not often that chlorides cause troublesome scum so that we will not deal with these at present.

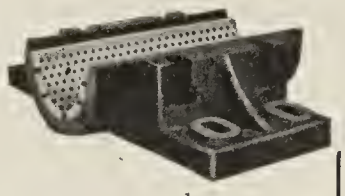
The other form of soluble salt is the sulphate, either of lime or magnesia or both together.

When salts are soluble in water they come to the surface as the brick are dried. The significance of this fact is that a very small portion of salt is thus concentrated on the face

Anchor Brand Colors
For Mortar Cement and Brick
Brown, Black, Red and Buff Strongest and most durable
Manufactured by
C. K. WILLIAMS & CO., EASTON, PA., U.S.A.
Correspondence solicited

MANGANESE
Prompt Shipment from Three Mines
THE IMPORT CHEMICAL CO.
276 Water Street NEW YORK

This Is the Way Your Bearings Look



To secure it you simply place a graphite sheet between the mandrel and the bearing box and pour in the babbitt. The result is a babbitt bearing impregnated with graphite spots. These bearings last from two to ten times as long on severe work.
Randall Graphite Sheet Lubricator Co., 816 W. Lake St., Chicago, Ill.

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of the clay instead of being distributed thruout the mass. Evaporation only takes place from the outside and as each drop of water is driven off by the heat of drying, its place is taken by another creeping up thru the substance of the brick from the center. But each drop of water carries in solution a tiny morsel of the salt. It cannot carry this away with it because the salt does not evaporate as the water does. The salt, therefore, is left behind.

The water, which keeps coming from the inside, driven by the heat, also carries tiny morsels of salt and these likewise, are deposited so that little by little all the salt is withdrawn from the inside of the clay and left on the surface.

If there should be a considerable quantity of salt present it may be seen on the dry brick as a delicate fur or coating. More often than not it is invisible until the brick are burned, when the dark color of the brick shows it up.

Sometimes these sulphates are already formed in the clay but often they are produced in the process of weathering and tempering.

A very common impurity in clay is the bright, golden mineral pyrite. Sometimes the grains of this are so small as to be invisible. At other times good sized fragments are found. This substance is the sulphide of iron and when it is exposed to air and moisture it changes to the sulphate of iron which is soluble in water. This, in itself, causes a brownish scum on light burning clays and would do no harm in a red clay but for another condition.

When the sulphate of iron comes in contact with fine grained limestone, which is common in the clay, sulphate of lime is formed and this is taken up by the water and deposited on the surface of the brick as already described.

Another source of soluble salts is the water itself. A very few natural waters are free from lime salts held in solution. The most troublesome is this same sulphate, but if the so-called "sulphate water" is used the lime may be on the clay and the sulphur in the water.

There are cases, to be dealt with presently, where lime alone will cause a scum but in the vast majority of instances both sulphur and lime are necessary.

Here is a simple test for the water: take a clean glass vessel, a tumbler will do, and fill it with water. If the water is at all muddy it should be strained thru blotting paper or a piece of fine mesh fabric. Procure a small quantity of chloride of barium, which is a crystalline salt soluble in water. Drop a crystal or two into the tumbler containing the water to be tested and stir with a clean pencil or paper knife. If a slight milky cloud forms in the water it shows the presence of sulphur. This is a source of danger because the clay probably contains lime already.

To test the clay is not so easy. In fact, to properly test a clay for the presence of soluble salts is a task involving considerable skill and care.

Lime is detected easily if it is present in quantity and in the usual form of the carbonate. The clay is moistened and a few drops of hydrochloric acid are added. A brisk effervescence or foaming proves the presence of a carbonate, probably of lime, but this is not a salt soluble in water.

Scum is not due directly to carbonate of lime, altho carbonate of lime, in the presence of "sulphur water," may become sulphate of lime, which is a frequent cause of the trouble.

A practical test of the clay may be made by mixing a portion with distilled water made by condensing steam. Several bricklets are shaped and slowly dried. One-half of each is then scraped or sand-papered to remove the surface skin. The bricklets are then set in the kiln, and after burning, the difference in color between the scraped and the unscraped parts will show conclusively if the clay is inclined to scum.



A second test may be made at the same time, using the ordinary mixing water. A comparison of the two tests will show at once whether the clay or the water is responsible for the scum.

If it should happen that the pieces are scummed on both the scraped and the unscraped parts, tho this condition is not common, lime probably is in the clay and sulphur in the coal.

By thus carefully locating the source of the difficulty the problem of a cure may be attacked intelligently.

The general remedy and, in fact, the only effective one, is to use barium in some form. Chloride of barium is the cheapest because it is soluble in water, and, therefore, can distribute itself thoroly thru the clay, but it has the disadvantage of introducing another soluble salt. If the least excess is used, the chloride of barium will itself cause a scum, altho not such a bad one as the sulphate of lime. Carbonate of barium is safe, but in order to be effective it must be used rather in excess because, being a fine, insoluble powder it cannot penetrate the clay as completely as can the soluble chloride.

The reason for the action of barium is that it has a strong affinity for sulphur and upon uniting with it the sulphate of barium is formed. This is insoluble in water so that the sulphur is held in the interior of the brick and cannot reach the surface to form a scum.

The barium has nothing to do directly with the lime. All it does is to take possession of any sulphur that may be present so that there is nothing for the lime to combine with to form a soluble salt. This explains why there are some forms of scum which barium will not cure.

Under some conditions lime itself becomes soluble in water. When water contains carbonic acid the lime may be there as a bicarbonate which is soluble or there may be a solution similar to that known to druggists as "lime water." Neither of these forms of soluble lime causes troublesome scum unless the clay contains a considerable amount of lime in itself.

If the two conditions are present at the same time, a bad form of scum may appear. In this case the only cure is to doctor the water itself or to change the source of supply. Boiling the water will help, because the lime is precipitated as in the form of the fur inside a tea kettle, but it is scarcely practicable to boil the water in sufficient quantities to serve.

Another way is to use a large tank and to stir some quicklime into the day's supply. This will precipitate the bicarbonate but the remedy must be used with care, because lime water may be formed. The correct amount of quicklime must be ascertained by experiment.

The cases where the trouble arises from sources other than sulphates are rare. In most instances, the scum is caused by sulphates. In most cases, also, the scum is formed in the dryer.

One point remains to be mentioned. If a clay containing lime should be dried by the heat from cooling kilns it is quite possible that sulphur gases are carried into the dryer. These will attack the lime and form the soluble sulphate. Barium is the cure in this case, also, because it sets a trap for the sulphur and thus prevents it from uniting with the lime.

* * *

A Good Result the European War Has Brought

"The war in Europe has brought about one good result," said Charles Bloomfield, the pioneer clay miner of Metuchen, N. J., the other day, "in that it has stopped the importation of clay to this country. The United States has all the clay needed for the industry in this country and it is just as good if not better than the European product."

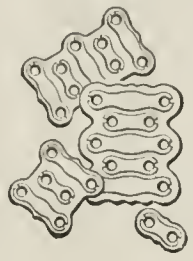
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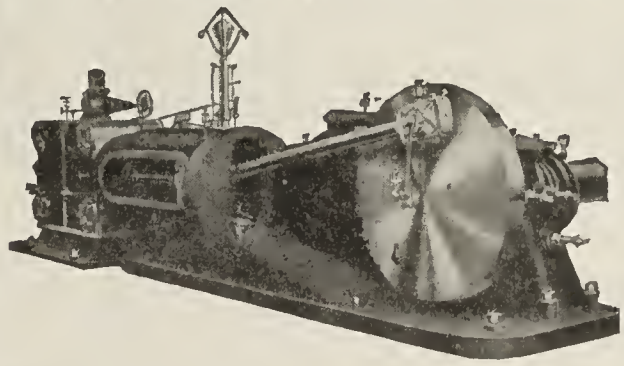
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Brick and Clay Record
445 Plymouth Court, Chicago, Ill.

The PULSE *of the* INDUSTRY

Wherein Is Shown the State of Its Health by a Review of Factors That Have Affected and Will Influence the Sale of Burned Clay Wares

THAT THE TIDAL WAVE OF PROSPERITY which has carried the building activity of 1916 far beyond the mark set by many of its predecessors is to suffer a slackening in speed because of the many adverse conditions that are now threatening, is a possibility that is very clearly indicated in the reports of February building.

Altho there are but few brick manufacturers and others interested in building who will not contend that the coming building season will, despite the excessively high cost and scarcity of materials and labor, be far in advance of even that enjoyed during 1916—that the wave of prosperity will not stop at the dividing line by which Father Time separates the past time and the present year—yet the fact remains that a very apparent and material tightening of building operations thruout the country is taking place.

Of course, the immediate effect of this abatement of new projects will not be felt to any great extent by brick and hollow tile manufacturers, as well as those engaged in the production of other building materials, for several months to come, because such a tremendous amount of work has been carried over from 1916 that several months of activity will undoubtedly be enjoyed. However, when the cumulative work that has come down from the preceding year has been completed and the money bags of prospective builders closed until some amelioration of present conditions takes place, there is bound to be experienced a decided slackening of the pace that has thus far been enjoyed.

PESSIMISTIC OUTLOOK FORCED BY FACTS

This prediction, or outlook, is somewhat contradictory to that which has been finding a place in "Brick and Clay Record's," Pulse of the Industry department for the past few issues, and is only presented because the index finger has turned from the ultra-optimistic angle to a position of conservatism, and past that to a point forecasting a decided decrease in building operations unless conditions improve.

In substantiation of this forecast is the statement of a representative of one of America's largest mortgage loan companies, and an authority on the subject, to the effect that altho his company had financed practically three million dollars' worth of building during the last few months of 1916 in Detroit, a city which enjoyed phenomenal growth during that period, yet not a dollar has been spent since January 1 at this point because of the high prices of building materials.



FEBRUARY RECORDS MAKE UNFAVORABLE EXHIBIT

Further proof that the trend cannot be construed as an altogether favorable one is seen in the reports of February building when they are compared with those of the corresponding period of 1916. Because of the scarcity and high cost of both materials and labor, much work is being held in abeyance and permits for constructional work during February at one hundred representative cities, involved an expenditure of $52,076,389, as against $51,778,391 for the same period of 1916. This is an increase of less than one per cent. and compares very unfavorably with the gain of 4.8 per cent. in eighty-one cities in the previous month, and gives additional evidence of the rapid tightening of the building situation that is taking place.

This report assumes even greater significance when it is known that, without the twenty per cent. gain which took place at New York, the exhibit would have been decidedly adverse since losses predominated, and outside the metropolis the total, which amounted to $41,224,212, was 3.4 per cent. smaller than that of a year ago.

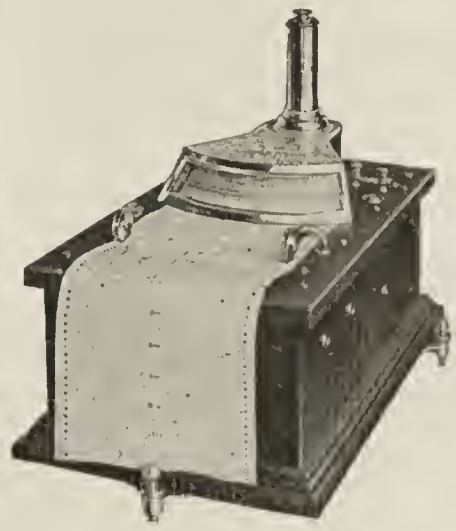
Important centers such as Chicago, Pittsburgh, Baltimore, Minneapolis and St. Paul disclosed decreases, but these changes were largely offset by the gains at Philadelphia, Boston, Cleveland and other points. The expansion in New York was confined entirely to Manhattan, all of the remaining boroughs reporting contraction.

NEW YORK BRICK SHOWS TENDENCY TO RISE TO $12

Reviewing conditions as they exist locally, we find that for a time New York was threatened with a near famine in common brick, the entire amount in the wholesale market being about 400,000. Fortunately, however, weather conditions were unfavorable for the use of building materials, and it is hoped that the Hudson River will soon be cleared of ice floes sufficiently to permit barges to be received from the Hudson River brick manufacturing centers. Already ice has been broken in the channel and it is only a matter of a short time until the coves will be cleared. Some of the yards along the Hudson River have resumed operations, while others are preparing to begin manufacturing brick very shortly. Altho there were indications that the price of brick might rise from the ten-dollar mark, declared this month, to $12, manufacturers are not inclined to crowd the market, feeling that the latter figure would be largely a speculative one and of short duration. It is not possible to tell at this time if there will be an increase, but it is safe to say that brick manufacturers will strive to supply the demand of 1917 at prices that will take care of the rising cost of manufacture and return them a fair profit.

SITUATION DOUBTFUL IN PITTSBURGH

In harmony with the sentiment expressed at the beginning of this review is the report from Pittsburgh which indicates that, if trade conditions reach a normal level, the brick manufacturers can look forward to one of the best years in their history, but if, on the other hand, conditions continue to inflate the costs of all building materials and keep them continually above the heads of the average builder, and if the uncertainty of the car situation continues, then there surely will be a slump in building operations. Architects do not have the amount of work on their boards that was confidently looked forward to, and when this condition prevails, it can be said that high prices alone can be blamed. Never before has the average workman been so flush with loose



This Recorder of

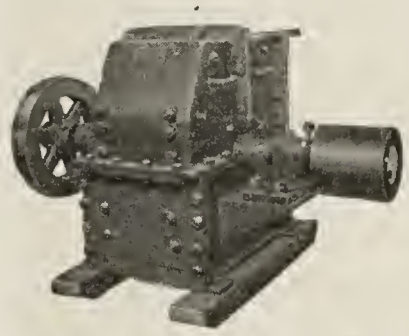
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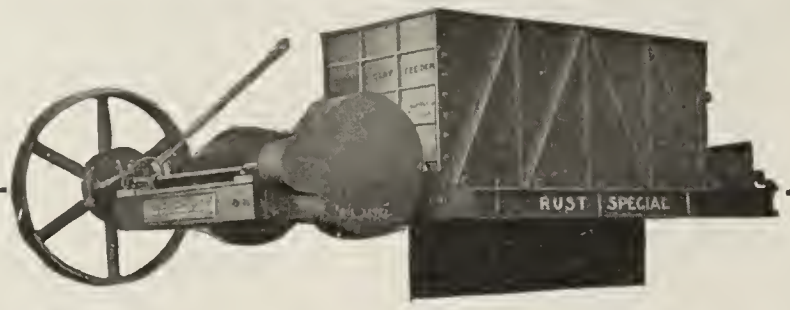
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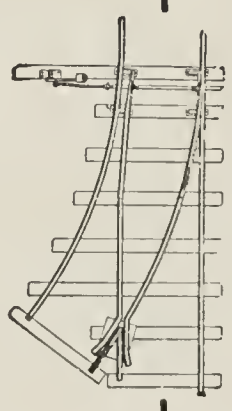
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change as he is at present, but he is not willing to squander it all in one investment. Speculative builders, who provide an immense market for burned clay building materials, are seeking other sources than the building game for turning over their money—simply because building prices are prohibitive.

Much the same condition prevails at the other Keystone State metropolis, Philadelphia. Here building operations are reported as being appreciably restricted by the high cost of materials and labor, but some optimism is felt by those who look forward to the advent of more favorable weather to cause a revival of activity in new construction.

The city of Allentown, Pa., has the stage set for the biggest spring building boom in its history, but the entrance of the old specter, "High Prices," threatens to spoil the act. Altho contractors and builders are experiencing difficulty in placing their fingers upon the price for many materials, their greatest trouble is in obtaining a figure on brick. Due to increased cost of manufacture and the fluctuating price of coal, it is practically impossible for manufacturers at this point to set a figure that will obtain for any appreciable length of time.

Building operations are not very active in Washington, D. C., at the present time. As a matter of fact, for this time of the year there are not as many spring prospects as usual. The slump is laid at the door of the uncertainty of war conditions and the prevailing high prices.

COAL SHORTAGE BANE OF OHIO MANUFACTURERS

Thruout Ohio brick manufacturers are facing a very serious problem in the coal shortage. Not a few plants are reported as having ceased operations due to inability to obtain fuel, while others who are willing to pay the price that is being asked are operating at reduced capacity. An interesting situation has developed in this state, in that private coal mines, located on farms, are being operated to relieve the acute shortage, and supplies from these "mines" form a portion of the coal used on many of the Ohio plants.

The closing days of March find the Louisville (Ky.) brick manufacturers principally in want of means to get their product distributed. The car situation is exceedingly discouraging and the appeals of the manufacturers and of those who are waiting on shipments to complete their building projects alike have failed to get the cars desired. What the Louisville manufacturers are objecting to principally, however, is that they do not always get an equitable share of such cars as are available for distribution. One of the leading manufacturers stated that for three months his plant did not average one car a day. Orders are accumulating and operations will go forward rapidly when this situation is improved.

As previously noted, Chicago has suffered a contraction from its last year's building record. However, local and outside building activities are showing resumption and a vast amount of work which has been carried over from last year promises to maintain activity at this point for some time to come. Building permits for the month of February, 1917, were valued at $3,657,900 as compared with $7,354,200 in 1916—a loss of almost fifty per cent. Here, as elsewhere, is shown a decided tendency to erect only such buildings as are necessary. Speculative builders have decidedly decreased the amount of their operations, while private home builders seem to be inclined to await the coming of lower prices. Factory and industrial construction are most active.



IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Edward T. Haven, manager and part owner of the Howes Brick Company of Northampton, Mass., has resigned his position with that company and sold his interest to the Howes brothers of Florence, Mass., according to a recent announcement.

W. G. Poate recently accepted the position of superintendent of the large paving brick plant of the Murphysboro (Ill.) Paving Block Company, and will assume his new duties on April 1. Mr. Poate was formerly superintendent of the State Clay Works, located at Knoxville, Iowa.

John A. Fenton, superintendent of the San Jose (Cal.) Brick Company met with a fatal accident on February 27, when he was struck by a train while returning to the company's plant from the San Jose offices. One of Mr. Fenton's legs was severed and, altho he lay for ten hours after the accident without being discovered, he was still conscious when found. The great shock, however, coupled with the loss of blood and long exposure, caused death shortly after he had been taken to a nearby hospital.

Mason Chilcote, superintendent of the Ohio state brick plant, operated by the board of administration near Junction City, submitted his resignation to the board to become effective April 1. His reason for resigning was to accept a better paying position in the West. Mr. Chilcote has been in charge of the brick plant since it started three years ago, and has built it up from a small institution to a most productive one. The three men eligible for appointment to the vacated position are Samuel C. Kargen, East Liverpool; Earl M. Tilton, Columbus, and E. J. Moore, of Greenville.

C. C. Anderton, who, for the past fifteen years, has been associated with the Wadsworth (Ohio) Brick and Tile Company, tendered his resignation to the board of directors of that concern, becoming effective on March 17, and has entered the brick selling field at Akron, Ohio. Mr. Anderton intends to make his territory extend over Akron, Kent, Barberton, Wadsworth and as far west as Mansfield. Already he has secured some very good lines for distribution, and, if a judgment can be based upon his previous record of highly efficient work, his resourcefulness and pleasing personality, there will be little that will separate Mr. Anderton from success in his new venture.

William H. Gifford, manager of the brick department of the Wisconsin Lime and Cement Company, Chicago, Ill., made an extensive business trip recently that carried him thru the Kittaning (Pa.) district, Alliance, Ohio, Evansville, Ind., and St. Louis, Mo. "Giff's" fame as a mesmerist, however, acquired thru a realistic presentation of mystic power at the recent annual banquet of the Chicago Face Brick Association, preceded him to several

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The Hill Clutch Company
Cleveland, Ohio

of the plants visited and caused many to look sideways at him lest they should fall under the spell of his indomitable power. However, it didn't take long to discover that Mr. Gifford's only claim to mesmeric ability is that which his irresistable personality and effervescent enthusiasm give to him.

Fred L. Dickey, general manager of the Dickey Clay Manufacturing Company and chairman of the Kansas City (Mo.) division of the business committee of the Chamber of Commerce of the United States in connection with the national defense movement, is expected in this city to attend the meeting just called for April 2. The call has just gone forth for a meeting of the chairmen of the business committees recently organized by the National Chamber to work in connection with the Council of National Defense. Secretary of War Baker recently requested the National Chamber to appoint such committees to co-operate with army district depot quartermasters in the purchasing of supplies now authorized by law. The mobilization of these local committees has gone forth rapidly with the result that all chairmen have been called to Washington for a conference on April 2.

Arizona

The citizens of Williams, Ariz., are endeavoring to secure a brick plant for their section. Business totaling 1,000,000 brick a year is promised the prospective settler.

California

The Richmond (Cal.) Pressed Brick Company is using a new type of porcelain clay, which is being brought by rail to its plant from Calistoga, Cal.

The California Brick Company has been awarded a contract for the delivery of 170,000 paving brick at the Board of Public Works yard, at a figure of $25 per thousand.

Ditell and Company have leased the clay and sand tracts belonging to N. Clark and Son at Sacramento, Cal., and will soon erect a sand and clay plant.

The Royal Securities Corporation of Los Angeles, Cal., is in the market for about ten and one-half miles of vitrified clay sewer pipe, ranging in size from six to sixteen inches.

Work on several large orders for new Los Angeles buildings has been started at the Alberhill (Cal.) plant of the Los Angeles Pressed Brick Company. New pumping equipment has been installed at Alberhill.

The Livermore (Cal.) Fire Brick Company is at work on a large quantity of polychrome terra cotta for use in some large buildings being erected at Oakland. The manufacture of terra cotta is a new departure for the Livermore company, which has heretofore limited itself to the manufacture of fire and pressed brick.

At the annual meeting of the stockholders of the Union Brick and Tile Company of Modesto, Cal., held recently, the following officers were elected: D. W. Morris, president; N. E. Leek, vice president; W. A. Downer, treasurer, and George T. McCabe, secretary. George A. Threlfall and D. M. McLean have been appointed new directors of the Union company.

California tile manufacturers are especially interested in the announcement of the railroads that, after April 9, a special freight rate is to be established on terra cotta roofing tile. The new figure of seventy-five cents



on a minimum of 50,000 pounds from California terminals to Atlantic points will enable the local trade to compete in the East.

On account of large advance orders, the Terra Cotta Lumber Company of Telco, Cal., has practically given up the manufacture of everything but drain tile for some time to come. Large tracts of land are being reclaimed in Solano county, near the plant, and this has resulted in a very profitable business. E. T. Maple, the proprietor, plans to extend the facilities of the plant to manufacture vitrified paving brick and sewer pipe.

It is rumored that the reopening of the old brick manufacturing plant located at Vallejo, Cal., and which has not been operated for the past twenty years, is a possibility that may materialize very shortly. Parties from San Francisco who wish to establish a pottery plant at that point have signified their desire to the Vallejo Chamber of Commerce to take over the old plant, and the members of that body are now at work perfecting plans for the transfer of the property.

Further information regarding the incorporation of the California Clay Corporation, which was announced in the March 13 issue of "Brick and Clay Record," points to the establishment of a $65,000 plant for the manufacture of fire brick and other clay products. The officers of the new company are: George C. Holberton, manager of the Pacific Gas and Electric Company, San Francisco, president; Arthur S. Cunningham of Ione, vice president J. R. Keith, of San Francisco, secretary, and E. V. McGinty, treasurer.

The plant of the Steiger Terra Cotta and Pottery Company at South San Francisco, Cal., as was stated in the March 13 issue of "Brick and Clay Record," was burned to the ground the early part of this month. It is believed that the fire was of incendiary origin as the plant had been closed for several months. W. E. Dennison, president of the company, states that they were about ready to open up for the season's run and that a number of large contracts had been closed. New arrangements for the filling of these will have to be made as it will hardly be possible to rebuild in time to fill present orders.

Colorado

According to Frank Stover of Fort Collins, Colo., the Poudre Valley Pressed Brick Company, of that point, which has long been inactive, will soon be placed in operation. The company is to be reorganized and supported by Fort Collins capital.

A strike of 180 employes of the Denver (Colo.) Sewer Pipe and Clay Company was recently averted by a settlement which resulted from arbitration of the employes' demands. The working day was reduced from ten to nine and one-half hours, and the wages of the employes increased ten per cent. The new arrangement will take effect on April 1.

A puff of wind in a recent Colorado windstorm playfully toyed with the dryer of the Longmont (Colo.) Brick and Tile Company, and displaying a particular fondness for the roof of that structure, gently removed it from its setting and carried it elsewhere. It is estimated that about $125 will be required to buy the dryer a new "top piece."

District of Columbia

There is a great shortage of common brick in Washington, D. C., owing to the fact that the only two com-



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mon brick plants at that point of any size are shut down because of a lack of fuel. In connection with the shortage of common brick, it is interesting to note that one of the old office buildings being torn down to give way to the new Washington Hotel yielded about 1,000,000 common brick. These were sold at good prices without any trouble. As a general rule there is great difficulty there in disposing of old common brick. Some buildings projects, to use much face brick, are being held up pending the arrival of common brick because the work cannot go ahead.

Idaho

W. A. Magee is to establish a plant with a capacity for making five thousand brick daily, at Caldwell, Ida.

The Moscow (Ida.) Fire Brick and Clay Products Company has completed its first order of fire brick for the market. The lot contained 60,000 brick.

Illinois

The large plant of the Abingdon (Ill.) Clay Company was destroyed by fire on the night of March 15. As yet the extent of the damage has not been learned.

The Big Savage Clay Products Company of Chicago, Ill., recently filed papers of incorporation with the secretary of state, placing its capital stock at $2,000. Edmond P. Kelty, Edward Gelds, Jr., and Arthur M. Kracke, are the incorporators of the new company.

Some little excitement was experienced at the Sheldon Brick Company of Urbana, Ill., recently when one of the sheds on its plant caught fire. Altho the local fire department was soon on the scene, a lack of water pressure at that point precluded action. A loss of about $50 was sustained by the company.

The brick manufacturing plant operated by M. Heckard and Sons at Canton, Ill., is soon to be placed in operation for the coming season, according to announcement made by John M. Heckard. This company looks forward to a very active business.

The new plant of the Gates Fire Clay Company, located at Colchester, Ill., was placed in operation on March 1, manufacturing flue linings and sewer pipe, the latter product being made in sizes from ten inches up. The factory is located on a forty-acre tract of land, which is underlaid with coal and clay, both of which materials are being mined thru a shaft sunk at the side of the plant.

A contract was closed recently between Donald Frazier of Deer Park township near Utica, Ill., and the Inland Steel Company, for the purchase of one hundred acres of refractory clay land for $96,000. The purchase marks the consummation of negotiations which have been pending for several weeks between Mr. Frazier and representatives of the steel company. It is expected that the steel company will make some very comprehensive tests of the property in order to ascertain the depth of the clay and its quality.

The full line of machinery of the Alsey (Ill.) Brick and Tile Company was purchased recently by Messrs. Zook and Meier of the Baker (Mont.) Brick Company and shipped to their plant in the West, after they had visited the Alsey factory and watched the equipment in operation. To supplant the machinery purchased by the Baker Brick Company, the Alsey Brick and Tile Company has installed equipment of a larger type, making the complete change with a loss of only four days in



operating time. The company is now able to manufacture 40,000 nine-inch fire brick a day and has just completed a shipment of approximately one hundred cars of that material for the Missouri Fire Brick Company of St. Louis, Mo.

Indiana

Melvin Brooking and Joe Mills have purchased the brick plant and tile factory at Majenica, Ind., from J. F. Ellis and D. C. Worster. The consideration was not made known.

The Southern Clay Products Company was recently incorporated at Huntingburg, Ind., with a capital stock of $600,000. Fred B. Adams, Daniel Reutepohler and C. Mandel Dowell are the incorporators of the new concern.

A two-story brick building, used as a sagger house at the United States Encaustic Tile Company's plant, Indianapolis, Ind., was damaged by fire recently to the extent of $3,000. The fire, which apparently started from an over-heated stove in the front part of the building, was extinguished once, but rekindled a short time later and broke thru the roof.

Officials of a number of the clay plants at Brazil, Ind., are greatly worried over the car shortage and predict that there is danger of a shut-down unless more cars can be obtained soon. The Hydraulic-Press Brick Company reports that it is seventy-five cars behind in its orders, and unless there is speedy relief, the factory will have to be closed down. A number of other plants are said to be in the same predicament.

Kentucky

L. K. Reynolds, formerly of Glasgow, Ky., will soon establish a brick plant at Hodgenville, Ky., to have a capacity of from twenty to thirty thousand brick daily.

The Basic Products Company, recently organized by Pittsburgh capitalists, and which recently took over the plant of the Ashland (Ky.) Fire Brick Company, will begin immediately to enlarge the works.

At Lexington, Ky., the Southern Building and Supply Company has been incorporated with capital stock of $20,000 to succeed the Congleton Construction Company. The new company is composed of W. T. Congleton, F. E. Kurzenknabe, J. E. Stone and E. Congleton. It will carry a complete line of building materials.

The Tyler Building Supply Company of Louisville, has secured a contract from the Standard Oil Company of Kentucky for the terra cotta to face the service station which the company will erect at Third and Breckinridge Streets in Louisville. The Gulf Refining Company recently completed its station in the same block and used a face brick furnished by the Tyler Company. The terra cotta for the Standard Oil job will be made by the Atlantic Terra Cotta Company.

There is almost a famine of brick in Louisville, Ky., at this time, in spite of the large number of brick plants in the section surrounding the city, due to the impossibility of getting cars. The Hillenbrand Brick Manufacturing Company, which delivers brick from its plant by wagon over the Louisville district, is doing a brisk business and has a goodly stock on hand with which to supply the demand. Prices on common brick, delivered in Louisville, are ranging from $8.50, which is the figure the dry press product is bringing, to $9 for the impervious types.

The Coral Ridge Clay Products Company of Louisville, is, according to James T. Howington, general man-



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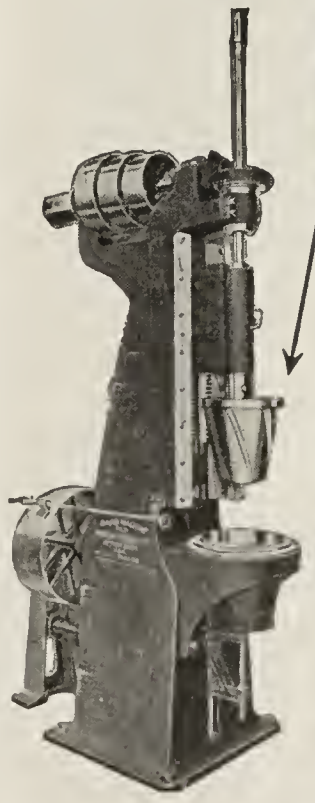
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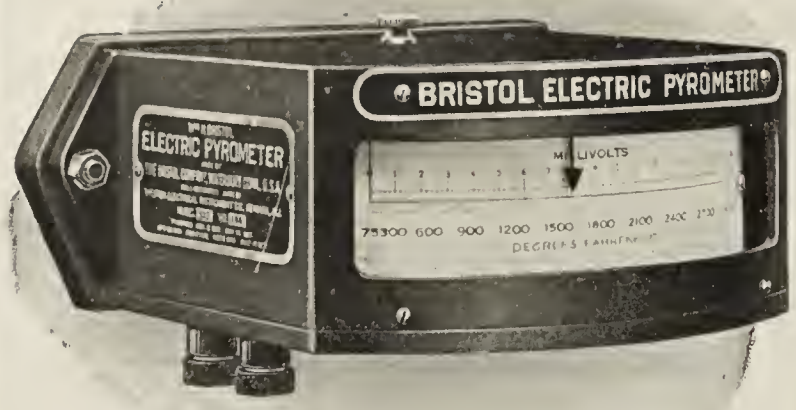
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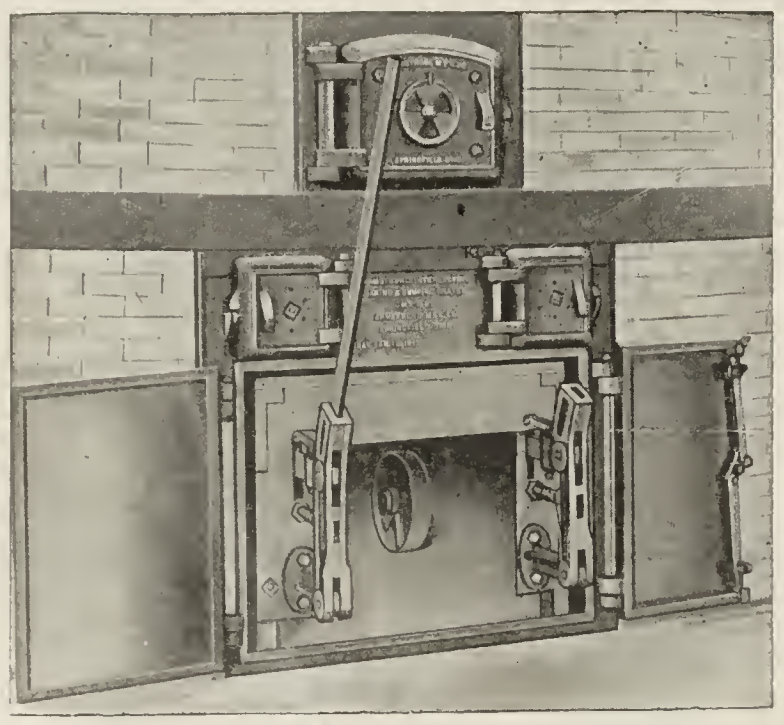
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We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

ager, now manufacturing brick exclusively. The company has accumulated a large stock of tile and ships on existing orders as rapidly as cars are supplied. Mr. Howington finds that coal is getting somewhat easier to obtain on the company's contract. The coal operators this spring are practically all declining to take contracts for a considerable period, and state that they are waiting for conditions to settle down so that a price can be made that should continue stable.

T. Bishop of the Southern Brick and Tile Company, Louisville, Ky., reports that company as being busy turning out orders but that it is suffering to some extent as a result of inability to obtain cars for shipment. Mr. Bishop calls attention to the fact that the rate on brick is well toward the bottom of the schedule of the railroad companies and that it is not to be wondered at if the railroads prefer to supply most of their equipment to concerns shipping a higher class product. The drain tile business of the company is holding up well, according to Mr. Bishop.

Plans for the auditorium which will be erected in Louisville, Ky., by the Louisville Auditorium Association have been completed in their general outlines and approved by the board of the association. The structure, which is to cost around $250,000, will be of brick, stone, concrete and steel construction. The facing material will be brick, with stone trim. The color plan has not been definitely decided on, altho it is proposed to use a buff-colored brick. Interior wainscotting in the lobbies, foyer, etc., will be of marble and tiled floors are proposed. Detail plans are nearing completion and bids will be asked for in a short time. This is one of the important building projects for the season in Louisville and is attracting much attention from the trade. Another big brick order, involving only commons, however, will be the annex to the Pendennis Club which is to be erected at a proposed cost of $150,000. The plans for this have been completed and it is stated that the contracts will be let in the near future.

There has been an interesting development this year in state aid roadway construction in Kentucky. This is the second year during which the plan has been in operation —the state furnishing pro rata amounts to counties for construction of "inter-county" roads, each county to provide at least equal amounts. These "inter-county" roads sooner or later become the streets of county seats and other towns along the routes, usually the main streets, and for this reason, many of the smaller cities of the state are applying for state aid funds to be used, together with the city appropriations for paving these streets. In most cases, the addition of the state's money will enable the cities and towns to provide something better than would otherwise have been used. Shelbyville, one county seat, for instance, is paving two squares a year with brick by this method. Other Kentucky towns which have asked for State Aid this year are Williamstown, London, Morehead, Elizabethtown, Greenville, Versailles, Danville, Glasgow, Earlington, Bardstown, Brooksville, Mt. Sterling, Lawrenceburg, Walton, Augusta, Midway, Junction City, Fairfield, New Haven, Frankfort and Erlanger.

Massachusetts

The West Barnstable (Mass.) Brick Company was recently incorporated with a capital stock of $9,600, for the purpose of manufacturing brick. William J. Makepeace of that town is president and treasurer of the new



concern, while John C. Makepeace of Wareham, Mass., is clerk.

Brickmakers thruout New England report that early spring orders are exceeding all expectations, with prospects of capacity operations for the entire summer. Many plants already are open for the season and at other yards repair work is being rushed to enable an early opening. April 15 will see practically all in full operation unless the shortage of help, which hampered the industry last year, proves to be a troublesome factor again this year.

Michigan

Three large contracts, calling for brick to be used in the construction of buildings at Battle Creek, were recently received by the Michigan Face Brick Company of Grand Rapids, Mich. H. N. Barr, manager of this company, was one of the delegates who attended the recent convention of the Western Brick Company's sales representatives, held at Danville, Ill., the Michigan Face Brick Company being the representative of the Western Brick Company in Grand Rapids. Mr. Barr reports that there is at present a shortage of common brick in Grand Rapids and predicts an early increase in the price of that material.

New Jersey

After being closed for about three months, the Hackensack River is now open for navigation. The barges are going up to Hackensack and Little Ferry, N. J., for the brick left in the sheds when navigation was suspended last fall. Not many of the manufacturers in this district, however, have any left to ship. The Mehrhoft Brick Company at Little Ferry is said to be the only company having any brick on hand for sale.

William B. Dolan, superintendent of the rehabilitated Standard Brick Company of Mountain View, N. J., and H. Haines, the Newark representative of that concern, are showing great activity in making the trade name "Standard" play an important part in the activities of clay products dealers. The plant of the Standard company, under the guidance of Mr. Dolan, has already undergone many improvements, and its capacity has been materially increased.

New York

The yard of the Aetna Brick Company at Cohoes, N. Y., near Albany, resumed operations for the season on March 19 with fifty men. The Aetna plant runs ten months in the year and its capacity for that period is 10,000,000 brick.

The Brooklyn (N. Y.) White Brick Corporation is a new company organized with an active capital stock of $37,500 for the purpose of manufacturing terra cotta, brick, tile and other ceramic products. The company will issue 7,500 shares of stock. H. A. Johnston, C. Slaughter and S. Grant of 189 Montague Street, Brooklyn, N. Y., are the incorporators of the new company.

William C. Black, New York representative of the Hay Walker Brick Company, recently secured a contract for 300,000 brick to be used in the new Ridgewood high school. The Humphrey Brick and Tile Company, Brookville, Pa., will supply 20,000 hollow tile for this building. Mr. Black was also the fortunate salesman who secured the contract for the 2,000,000 brick required in the construction of the new Commodore Hotel in New York City.

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The Ithaca (N. Y.) Brick and Tile Company started the year's work on March 1. George O. Woodelton will operate the plant as lessee for the present, but intends ultimately to take over a controlling interest in the company. Mr. Woodelton has lived in Canada for the last four years and has had considerable experience in the manufacture of clay products. The Ithaca plant is of modern construction and has a capacity of 300,000 brick a day.

Ohio

The Empire Tile Company of Cleveland, Ohio, recently announced an increase of capital stock from $10,000 to $125,000.

A new brick manufacturing plant is soon to be placed in operation at Cleveland, Ohio, by Tom J. Banks and Son. The necessary land has already been purchased and, it is said, machinery will be installed as soon as the weather permits. Hand pressed brick will be made and the plant will have a large capacity. Operations are expected to commence about May 1.

New panels for the display rooms of the Cleveland (Ohio) Builders' Supply Company are now being prepared by J. E. Morrisey, manager of the brick department of that concern. These panels will feature the new textures being handled by this firm. Mr. Morrisey has just returned from a trip thru Ohio and Pennsylvania, where he visited many brick manufacturers.

The Ohio State Brick and Stone Company, C. D. Young, general manager, which maintains its headquarters at Columbus, Ohio, has taken over the plant of the Shawnee (Ohio) Flash Brick Company. The concern has started operations and has several kilns under fire. The prospects for the company are exceedingly bright, according to the interested parties.

Paving brick will undoubtedly be used in the construction of the $500,000 motor speedway, which is being projected by the Columbus (Ohio) Motor Speedway and Racing Company, recently organized. A site near the center of Columbus has been secured and it is planned to start work soon. It is expected to have the motor speedway, which will be modeled after the one in Indianapolis completed by August 1.

Emmet Howard, salesmanager of the Claycraft Brick Company of Columbus, Ohio, has returned from a business trip to Chicago. He says that, owing to the high price of materials and also inability to get supplies, investment building is bound to suffer a decrease. The car situation is bad and everything now hinges on the ability of factories to make shipments. Orders are not hard to get, but it is a difficult task to get the shipments thru.

R. L. Watson, who is located in the Brunson Building, Columbus, Ohio, and who acts as agent for a large enamel brick company, has been notified that another advance of five dollars a thousand will be made by April 1, following a similar advance since the first of the year. The clays which go to make up the enamel come from Germany, and altho the company secured a large shipment of these materials just before the war started, none has been received since and there is no possibility of getting a supply for a long time. This is given as the reason for the advance.

M. M. Morrow, salesmanager of the Hocking Valley Brick Company, manufacturers of paving brick, in speaking of conditions in paving circles, said: "Unless the war situation clouds the outlook, there will be considerable



paving in all parts of Ohio this year. The worst feature of the present situation is the labor condition. If the United States undertakes to raise an army, it will take many men from our industrial lines and make the labor market tighter than it has been. The car supply has eased up considerably during the past few weeks."

Prison-made brick will be used by Ohio in the construction of two Perry county roads for which the state let contracts last year. State Highway Commissioner Cowen asked the state board of administration to furnish 2,500,000 brick for these improvements and to have the brick ready for delivery by June 1. The brick will be turned out at the state brick plant at Junction City, which is operated by the administration board. Nearly seven miles of roadway will be paved with this brick. This will be the first use of prison-made brick in road construction work of the state.

The Thomas Moulding Brick Company of Chicago, Ill., has now had its branch office established in Columbus, Ohio, for two months, under the management of J. P Turpin, and business prospects are exceedingly bright. The Moulding company is the owner of the Straitsville (Ohio) Impervious Brick Company, which is being operated on a full time schedule. According to Mr. Turpin, the outlook for spring business is exceedingly good in every way and orders are coming in satisfactorily. The worst feature at present is the short car supply and railroad congestion, which are delaying shipments.

H. M. White, salesmanager of the brick department of the Hocking Valley Products Company, Columbus, Ohio, reports the labor troubles at the company's plant in the Hocking Valley settled. For a time the concern had trouble with the sorters, but after the wage scale was revised, the men went back to work and are apparently satisfied. Mr. White says the building outlook is not so good since there are grave possibilities of war. He is fearful that if war comes it will stop some of the building projects which have been almost completed. The car situation is still bad and is holding up shipments to a large degree.

At a recent meeting of the stockholders of the National Roofing Tile Company of Lima, Ohio, the company was reorganized with a capital stock of $150,000, and will be operated in the future under the name of the Lima Hollow Brick Company. Immediately after the reorganization, contracts were let for the construction of new dryers and the installation of a producer gas system of burning. Arrangements were also made for the purchase of new machinery. From all indications, the plant will be in operation by the early part of April. Officers and directors of the company are: Charles F. Stolzenbach, president; G. R. Wood, vice president; Andres Decurtin, secretary and treasurer; J. R. Sinclair and Theodore Rusch.

If any effort is made to revive the Totman house bill providing for the erection of a brick plant at Athens, Ohio, when the senate returns to finish up its work, the people of Athens will send a delegation to Columbus to oppose such action. They do not want the plant to be located at that point, and have so expressed themselves in a manner which cannot be misunderstood. The chamber of commerce in the Hocking county city held a meeting during the past week when the matter was thoroly discussed, and there developed a wide division of opinion. Many held that locating the brick plant for the employment of several hundred prisoners would not add much

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These grates are easy to handle, because they are horizontal, shaking and dumping.

The natural result is that the firemen can control the fires, the furnaces are easy to clean and clinker. There is no fierce heat glare during firing and especially during clinkering. No backbreaking labor pounding and slashing at great wads of clinker.

With all of this, you or your company gain the most. We can cite you to many cases where the fuel saving has been from 25 to 40%, time of firing materially reduced, and some other advantages that will look good to you.

The men like it—it saves their strength, you will like it—it saves you men and money.

Just ask—how?

The Canton Grate Co.
1706 Woodland Ave.
Canton, Ohio

Southern Representative: McBurney & Jones, Efficiency Engineers, 829 Trust Co. of Georgia Building, Atlanta, Ga.



For Periodical Down-Draft and some Continuous Kilns.

to the general prosperity of the city and that its location somewhere else would prove just as satisfactory. The Totman bill carries with it an appropriation of $300,000 for the erection of the plant. At present the state leases a factory near Junction City, and if the Totman bill fails, or the efforts of the Athens people prevail, the board of administration may be empowered to purchase the present plant, which is under option as well as lease.

The Ohio legislature has passed a bill which will make the selling of brick and other building materials to contractors engaged on public work a much easier and safer proposition. It is a sort of supplement to the mechanic's lien law, altho it is not in the nature of a lien but compels all contractors on state, county, city or township work to give bond of an accepted surety company, covering all materials and labor used on the work. In that way losses thru bad accounts will be reduced to nothing. The new law is the result of agitation by the Ohio Face Brick Manufacturers' Association, co-operating with the Ohio Builders' Supply Association and other associations. It will become effective as soon as the referendum period is over.

Oregon

The new $125,000 clay products factory of the Warrenton (Ore.) Clay Company will be opened April 7.

Pennsylvania

The brick manufacturing plant operated at Harrisburg, Pa., by E. E. Fleurie, recently closed down for a week to install clay preparing machinery. This is the first time in a year that the plant has ceased operation.

Minor improvements are being planned to the brick manufacturing plant operated at Harrisburg, Pa., by E. C. Landis Company, formerly known as Leiby and Landis. This plant has a daily capacity of 33,000 brick and employs forty-three men.

An addition is being built to the plant of the Speeceville (Pa.) Brick Company to enlarge its capacity. An office is also being built at the plant for the accommodation of the office force. The continuance of favorable weather will undoubtedly enable the plant to resume operations very shortly.

Common brick in the Pittsburgh district is selling at unprecedented figures and is extremely hard to get. Prices range from twelve to fourteen dollars per thousand; face brick runs from eighteen to twenty-two dollars. Deliveries in many cases are from two to four months behind.

The manufacture of brick is by no means the limit of the activities of the Humphrey Brick and Tile Company of Brookville, Pa., of which Lee B. Humphrey is secretary. This company not only makes an excellent quality of brick, tile and hollow brick, but it furnishes all the light its home town uses. In other words, it controls the gas supply upon which the community depends for its light and heat. Then, too, it has branched out in other lines of manufacture, and now makes a superior quality of glass.

A large deposit of fire clay, said to be of exceptionally high quality, has been located at Somerset, Pa., in connection with an extensive deposit of phosphate rock. It is said that a company will be organized within the next few months to develop the property. The land containing the deposit is located along the Baltimore and Ohio Railroad and favorably situated for shipments. Altho

SAY I SAW IT IN BRICK AND CLAY RECORD

at the present time attention is being focused upon the development of the phosphate properties, the establishment of a brick manufacturing plant to utilize the fire clay is hinted at as a possibility for the future.

Lew R. Palmer, chief inspector for the state labor and industry department at Harrisburg, Pa., has submitted a report showing that out of the 1,035 plans for theaters, factories, assembly halls, and so forth, which came to the attention of the department, only 131 plans were rejected. These plans were for buildings in various parts of the state, other than Philadelphia, Pittsburgh and Scranton, which have their own building laws, but careful attention is given so that such structures must be absolutely fireproof. The records show that brick was the prevailing material used in construction work.

The Hayes Run Fire Brick Company, Orviston, Pa., is at present erecting a new plant for the manufacture of silica brick. The new building is of steel with brick exterior walls and will be fitted up with the most modern machinery. Between 30,000 and 40,000 brick will be made daily. The company first entered the clay fire brick business some eight or nine years ago and was successful from the start; later on it took up the manufacture of high grade building brick and has built up an immense trade. The new venture in silica brick promises to be equally as successful. A vast acreage of ganister rock has been secured and with the prevailing prices for the new product, there looms up a promising business. Never before has there been such a demand for silica brick as at present; some companies could sell four times their output, if labor and shipping facilities were better.

South Corolina

The Carolina Brick Company of Florence, S. C., has been chartered with a capital stock of $4,000. The officers of the new concern are: J. W. Moore, president; D. A. Layton, secretary, and L. S. Morrison, treasurer.

Tennessee

Application for a charter of incorporation was filed recently by the Banks-Mitchell Company of Chattanooga, Tenn., with an authorized capital stock of $5,000. The incorporators of the new concern are: L. A. Banks, Lon W. Mitchell, A. Shalliday, S. R. Roddy and A. W. Chambliss. This company, it was stated, was organized for the purpose of manufacturing fire brick.

At a recent meeting of the subscribers of the Watauga Valley Association, held at Johnson City, Tenn., plans were discussed for the organization of a brick plant. A committee was appointed to have the shale deposits at that point analyzed and to investigate the possibilities for the successful operation of a clay products manufacturing enterprise.

Utah

The Provo (Utah) Press Brick Company maintained a very interesting exhibit of its burned clay products at a show given recently in connection with the Farmers' and Housekeepers' and the Electrical Manufacturers' conventions held at Provo.

Professors E. H. Beckstrand and Roy Taylor of the University of Utah are directing the work of research students in making tests of brick manufactured in that state. The work has been assigned to the Utah institution by the American Society for Testing Materials.

Improvements aggregating more than $30,000 have recently



Conditions that spoil *ordinary* belting do not affect Gandy Thresher Belts. They are weather-proof and service-proof.

For thirty years they have given absolute satisfaction in all thresher work. Today they are used and endorsed by 30,000 threshermen. The ravages of rain, of dirt, of oil, of grease do not harm Gandy Belts. They do not stretch, shrink or harden. These alone are tangible money saving advantages for *you!*

But more—they transmit maximum power because, being cotton stitched, they hug the pulleys closely.

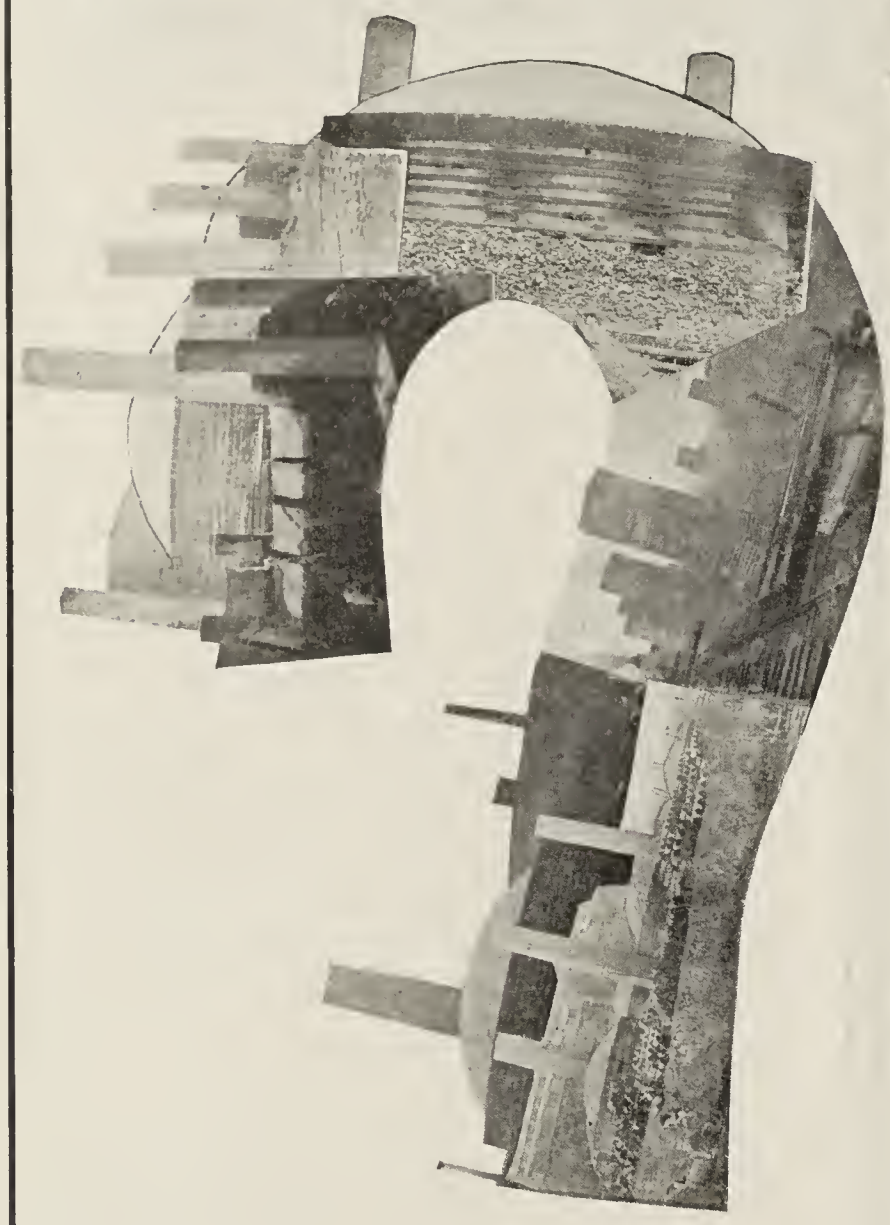
Gandy Belts are *made* to resist the hardest kind of work—and they *do*. They provide absolute satisfaction or you get a new belt *free*. There is no substitute for Gandy Belts.

The Gandy Belting Company
732 West Pratt Street
Baltimore, Md.

New York Branch: 36 Warren Street



IF IT'S A QUESTION OF KILNS— WE CAN ANSWER IT





Equally efficient in round, square or rectangular kilns, single or multiple stack type. New Hook Kilns cost less, as a rule, than kilns of other styles. Old kilns can be changed to our type at comparatively small expense.

Give us number and size of your kilns, kind of ware, burning time and fuel consumption. We will estimate cost of installation and saving that can be effected.

Grate Bars, Bands, Lugs, Ventilators, Castings

HOOK PATENT KILN CO.

High and Spring Streets

COLUMBUS, OHIO

been made to the plant of the Ashton Fire Brick and Tile Company of Ogden, Utah. This company, which is shipping its products thruout Utah, Idaho, Montana and Nevada, is Ogden's pioneer brick manufacturing plant, having been established in 1887 as the Leek Brick Company. A constantly growing demand for its products, which are mainly brick and tile, has necessitated several increases in capacity, the last of which has placed the plant at a very high point of efficiency. The improvements, practically all of which were completed during the past year, embraced the construction of five new round down-draft kilns and the installation of modern machinery where necessary in the machine room. In order to carry off the kiln gases, the highest stack in the state was erected. This stack, which is 190 feet high and has an average diameter of more than fifteen feet, supplies the draft for seven of the company's kilns. More than 250,000 brick were used in its construction. Still further improvements to the plant are being planned by J. P. Cahoun, president of the Ashton company, which will include the construction of additional continuous kilns, and another large stack.

Virginia

The Waterloo (Va.) plant of the Hydraulic-Press Brick Company is working on full time, altho it, too, along with the other plants in the vicinity of Washington, D. C., has been experiencing great difficulty in securing coal at almost any price.

The Burroughs and Mankin Company of Richmond, Va., is contemplating improvements at its plant which will increase the daily capacity to 150,000 brick, most of which will be rough-textured and sand-mold face brick. Besides the additional machinery to be installed, this company is, according to its present plants, to install a producer gas system of burning, to be used on its rectangular down-draft kilns. Neat and attractive bunk and commissary houses have already been built to minimize difficulties arising with labor, while the activity of the sales department is reflected in the increased space that has been provided for displaying the products of the plant at the company's headquarters in the Merchants National Bank Building in Richmond. The Burroughs and Mankin Company has secured the services of E. M. Edgington, formerly of Toledo, Ohio, as superintendent of its plant.

Wisconsin

Ricketson and Schwartz of Milwaukee, Wis., will furnish the brick for 12,000 yards of paving in Whitewater, Wis., in addition to several paving orders received from Milwaukee this spring.

Practically every brick manufacturer in Milwaukee, Wis., has reserved space for the Milwaukee Real Estate Association Home Builders' Show, to be held in the Auditorium in April. The brick men are now trying to out-do one another in planning elaborate exhibits.

In addition to many large brick structures just completed at Milwaukee, Wis., and those under construction, several others are being planned. The Wisconsin National bank is considering plans for the erection of a seventeen-story building, while the Chamber of Commerce is seeking a site for a new home that will cost in the neighborhood of $800,000.

Want to Know What's Comin'?
Read Page 628



WHY CLAY PLANTS LOSE MONEY

(*Continued from Page* 644)

It is equally as foolish to sell goods without knowing their accurate costs, as it would be to purchase any materials without knowing what you were to pay for them.

I have been working for the last three years on a suitable cost system that would be simple and accurate in its operation, one which would elimiate all unnecessary labor and give me facts and figures as I needed them, and so arranged to be of the greatest help. It would take too much time to describe the mechanical details of this system, but before the close of my paper, I will discuss the various cost sheets.

LABOR, SUPPLIES AND EXPENSE MAKE UP COST

In my study of fundamental cost principles, I find there are three items which make up a cost, namely, labor, supplies and expense. The item of expense consists of all necessary labor and supplies for the general maintenance and efficiency of your plant, such as, superintendence, general cleaning, manufacture of special tools or appliances, cost of safety, fire prevention, and welfare committees. The cost of a chemist's or efficiency engineer's service would come under this heading. For a clay product plant, these principles are best analyzed as follows:

First.....Burden Costs.
Second.....Manufacturing Costs.

Each of these divisions consist of labor, supplies and expense. There may be some departments in the above divisions which may warrant a separate expense item. We have found that the expense item applies more to manufacturing than burden costs, and for the ordinary plant, one heading of expense will take care of the manufacturing costs.

Burden costs consist of all costs necessary to carry on the business outside of the manufacturing costs, and are classified as follows:

Fixed charges—
- Interest on all indebtedness.
- Insurance of all kinds.
- Taxes of all kinds.
- Rent—Office and plant buildings.
- Depreciation.

Sales Costs—
- All items of cost necessary to make, keep, and execute sales.
- Advertising and other important items are, of course, classified separately under this heading.

Office Costs—
- All help and supplies.

General or Miscellaneous Expense—
- All costs of breakage, discounts, collections, etc.

Administration Costs—
- Management, legal and other similar costs.

RENT AND DEPRECIATION IMPORTANT ITEMS

We are all familiar with these items, and should make sure that we leave nothing out—that every item of cost is included. There are two very important items which many concerns do not include, namely, rent and depreciation. Some people believe these are not cost items; they are, however, equally as important as any other cost.

A rent charge of six per cent. of the depreciated value of all buildings should be made. To simplify this charge,

Youngstown Steel Bottom Dump Cars

Why They Last Longer

In dumping this type of car, the lock is released and the "bottom falls out," dumping the load of clay into the bin or other receptacle.

It is obvious that the hammering and swaying usually attendant to dumping side dump cars is entirely obviated.

Our bottom dump cars will last from three to five times as long as the usual side dump cars.

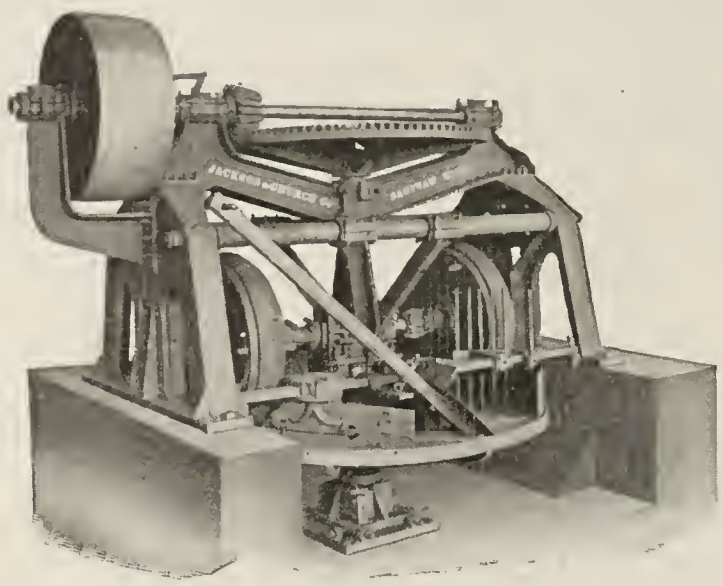
We make all kinds of cars in any quantity to suit your purpose.

The Youngstown Steel Car Company

Youngstown, Ohio







Grinding Pan

Wet or Dry

Especially rugged and substantial. Nine-foot size weighs 40,000 lbs. Large shafts with bearings close to point of labor. Accessible adjustable step box. Extra heavy mullers and wear plates of hard white iron. All parts interchangeable. Repair parts always in stock and low in price.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of machinery for making Sand-Lime Brick. Boilers, Rotary Dryers and Kilns, etc.

other items of rent cost, such as heating, lighting, repairs, etc., are carried under Manufacturing Expense. If you had leased your buildings, you would have to pay rent; and since you invested your money in your buildings, you are most certainly entitled to a fair rate of interest on your investment. The two most important reasons for this rent charge are that buildings are generally considered as real estate and that there are seasons when the clay products industry makes no money. Real estate should make six per cent. Equipment can be moved, but buildings must remain, and can be used for other purposes than clay products manufacture.

Depreciation consists of two items: direct depreciation on all property and obsolescence. Many times a piece of machinery will become obsolete long before it has depreciated. It must be thrown out and replaced much sooner than anticipated. Some things depreciate faster than others: buildings at the rate of about five per cent. to eight per cent.; kilns at from ten per cent. to twenty per cent.; machinery at from twenty per cent. to fifty per cent. Practice and experience has shown us that a charge of from ten per cent. to fifteen per cent. per year of the cost of all buildings and equipment is fair for clay products plants. This depreciation charge is the most important of all; it is the *only* protection you have for your investment. The man who would loan money without security is the one who does not charge up depreciation. We are compelled to give proper security when we borrow money—why should we not protect our stockholders in the same manner? If the average stockholder knew how unprotected his money was in a plant where no depreciation charge is made, there would be fewer failures and happier souls. Today, banks in many cities will not loan money to concerns which do not make proper depreciation charges; they demand that their security be protected. It is perfectly right and proper that they should so protect themselves.

THIS COMPANY DIDN'T CHARGE OFF DEPRECIATION

The following example very clearly points out the hazard of no depreciation: "The Contented and Slide Easy Brick and Tile Company" was organized in 1905. It finished the building of its plant in January, 1906, at a cost of $100,000. Business was good at that time and it did not need much capital to get started. Fate was also good to those interested in this concern, fortunately, for they could make salable ware from their clay. John Plodder, their superintendent, kept things running in good shape. At the end of each year's business they always had enough money left to pay a dividend, some years eight per cent. and some six per cent., but it never got above eight per cent. The plant was, of course, a good help to the town and as long as the stockholders always got a dividend, they were contented. Very few, if any, records were kept, and depreciation was something that had never been heard of. The status of the plant today, however, is very different. The kilns simply wore out and had to be replaced last year at a cost of $50,000. To take care of this expense it was decided best to issue additional stock. Their output was not increased nor their cost reduced. Their income is the same as before, and the dividends instead of being six per cent. or eight per cent., will be three per cent. or four per cent. The total value of the plant has decreased, and the stockholder has a poorer investment. A proper depreciation charge would have saved them. Another condition which very often arises is the depletion of the clay supply. Suppose their source



of raw material became exhausted. Without a depreciation reserve, the stockholders would not realize ten cents on the dollar. Depreciation protects your capital against time and unforseen disasters. It is a safeguard which you cannot afford to be without.

OUTLINE OF MANUFACTURING COSTS

The Manufacturing Costs at the writer's plant are arranged into the necessary divisions as follows:

Pit Costs:

All costs incurred up to and including the point where clay leaves the pit car.

Machine Costs:

All costs up to point where product leaves off-bearing belt on dryer car.

Dryer Costs:

All dryer costs, power, labor and supplies, and green and dry end transfer.

Setting Costs:

First. Transfering cost, taking cars to kilns and delivering back to machine.

Second. Actual setting.

Burning Costs:

All costs pertaining to burning: labor; supplies consisting of fuel and other items; kiln repair; cleaning and casing, etc.

Emptying Costs:

First. Kiln to Cars.

Second. Kiln to Yard.

Third. Yard to Cars.

Power Costs:

All costs pertaining to power: labor, supplies, etc. Indirect Expense: (This is the manufacturing expense item.)

All supervision.

General machine and blacksmith work.

Teams.

Cleaning.

Building repairs, heating and lighting.

All other expenses not elsewhere classified.

BASIS FOR FIGURING DEPARTMENTAL COSTS

The cost per ton is known each month for the entire plant, and for the various departments. The total cost per ton is always based on No. 1 ware emptied from the kilns. In figuring the cost per ton for the various departments, the tons of No. 1 ware leaving that department are used. Thus, the basis for the pit, machine, and power costs per ton are the tons run; for the drying and setting costs, the actual tons set; for burning, emptying, total manufacture, burden, and grand total costs, the tons of No. 1 ware emptied. This method is used so as to have a basic comparison of departmental costs. You could not charge the machine cost with an error which occurred in drying.

Another very useful scheme is to establish a perpetual cost, income, profit and loss, and balance table which shows each item for the month and the total for the period to date. This is so arranged that your quick assets, liabilities and other comparatively important items, are together. Thus, at a glance, you can readily determine each month your exact financial standing and are able to compare it with previous months and the same month of the previous year.

The advantages of accurate cost data are too numerous to mention. We cannot afford to be without them. They always tell a true story and save us money. We cannot know too much about our own business.

Can Your Hand Labor Dig and Load Enough Clay for 66,000 Brick Per Day at as Low a Cost as $6.37?

Of course they can't—yet that's what Walker & Frank Brick Co., of Detroit, have been doing with a Type "O."

Thew Automatic Shovel

They are doing this with one man on the shovel and another on the ground, and they have been working the shovel continuously for many years with this same splendid service. Their shovel is shown at work in the photo below.

Nearly 400 THEW shovels in clay plants are daily proving their superiority for the hard requirements imposed.

Let us send you our Circular 27-C, giving specific cost data of THEW shovels in clay plants.

The Thew Automatic Shovel Co.

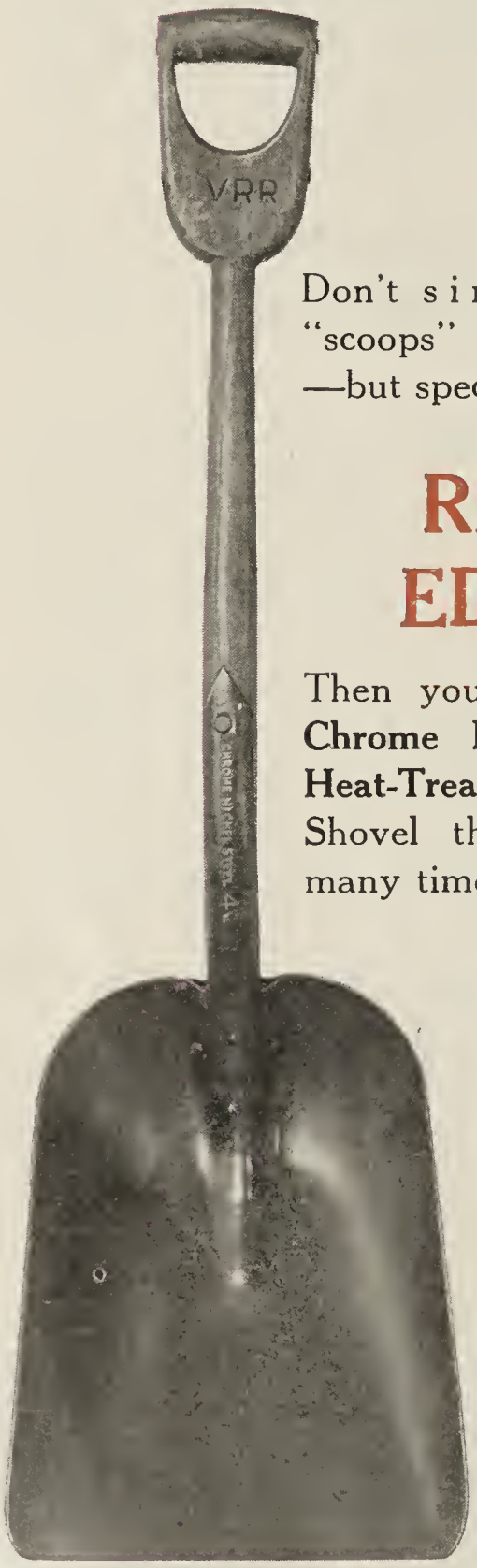
Lorain, Ohio

GASOLINE—ELECTRICITY—STEAM



SAY "I SAW IT IN BRICK AND CLAY RECORD"

WYOMING-MAYARI
RED EDGE
SHOVELS



Don't simply order "scoops" or "shovels" —but specify

RED EDGE

Then you will get a **Chrome Nickel Steel, Heat-Treated** Scoop or Shovel that will last many times as long.

Any type or pattern. Write for Red Edge Catalog and name of nearest distributor.

The Wyoming Shovel Works
Wyoming Pennsylvania

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Patriotic Buttons

Nearly every visitor at the N. B. M. A. convention, held in New York City early in the month, was wearing one of the patriotic red, white and blue buttons given out by the American Clay Machinery Company. In fact, other McAlpin guests besides those in attendance at the N. B. M. A. convention were anxious for the buttons, so that nearly everybody was wearing one.

This was, of course, to be expected in these days of intense patriotism due to international complications, but it remained for the American Clay Machinery Company to grasp the opportunity presented by the situation.

Every man on every clay-products plant in the country ought to be wearing one of these buttons which can still be had by addressing the company at Bucyrus, Ohio.

* * *

No Loafing With the "Automatic"

In these days of scarcity and high price of labor, particularly common labor, it behooves all manufacturers, and especially those in the clay-products industry, to adopt every labor-saving device they possibly can.

There is scarcely a clay plant of any prominence where there has not been constant trouble, especially during the past couple of years, on account of the scarcity and independence of "wheelers." It has made many a superintendent heartsick to go out into the yard and see the "wheelers" loafing around when every minute should count. This has been especially tantalizing because one has not dared to say the things he wanted to, for fear of losing the labor he had.

The Automatic Transportation Company of Buffalo, N. Y., have been able to render remarkable assistance in the solving of this particular problem, and they have not only made one company in Pennsylvania, for instance, independent of "wheelers," but they are actually saving them several thousand dollars each year by reason of the reduced cost of getting their brick from the kilns to the yard. This is done by means of the Automatic Electric Elevating Platform Truck.

This truck will carry 500 ordinary size brick, whereas the average barrow will carry only 80, and, of course, the electric truck travels several times as fast as the barrow.



Interior View of Part of Factory of The Automatic Transportation Company, Buffalo, N. Y.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

By using portable platforms which are picked up and deposited by the lifting and lowering device of the truck, it can readily be understood that the men in the kiln and out in the yard are constantly at work, inasmuch as there is always one platform in the kiln being loaded with brick, another one out in the yard being unloaded, while the truck is operating between the kiln and the yard with either a loaded or unloaded platform.

The Automatic Transportation Company has one of the finest factories in Buffalo. Splendidly equipped thruout for the efficient operation of machines, this has made it possible for them to produce a high-grade truck at a comparatively low price. The very best of materials are used in the construction of this truck and it is so built that it is simple to operate and easy to keep in good condition. Any man on the plant can learn to run it after a very few minutes' instruction.

By reason of such efficient factory facilities, this company is in a position to make prompt shipment of such trucks as may be needed this season by clay-products manufacturers who are anxious to overcome the difficulties they are otherwise bound to have from the scarcity and high price of common labor.

* * *

Addition to Goodyear Factory

The new mechanical goods factory building being erected by the Goodyear Tire and Rubber Company, at Akron, Ohio, to provide for the company's rapidly expanding business in mechanical rubber goods, will add more than eleven acres of floor space to the total factory area. The new building is 500 ft. long by 200 ft. wide, five stories high, and is the largest building in the Goodyear group.

A large number of readers of "Brick and Clay Record" are familiar with Blue Streak Belts manufactured by this company inasmuch as they are used with great satisfaction to a considerable extent in the clay-products industry.

This company issues an Encyclopedia of Mechanical Goods that ought to be in the hands of every brick man because of the data and practical information it contains relative to operations involving transmission equipment.

* * *

"What Are You Going to Do About It?"

At no previous time in the history of manufacturing has there been the excessive cost now attached to fuel.

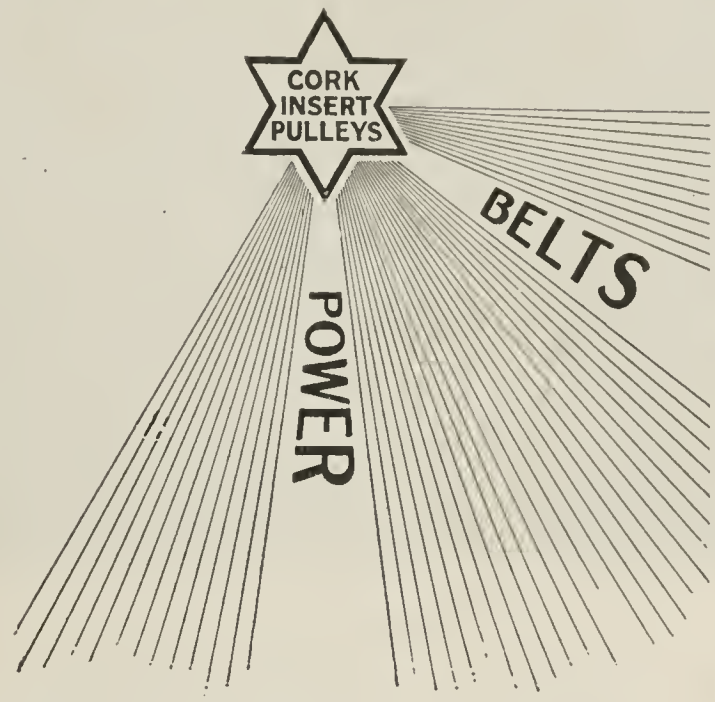
Within one year's time the price has advanced from two to three and even four times the former price, and no reasonable guarantees that it will return to normal. It may fluctuate slightly, the trend may soon be downward, but without a doubt in the world, high, excessively high, prices will rule thru this year.

The coal mines are producing to a maximum, and every pound is eagerly sought, some firms have even withdrawn their salesmen, having no need to sell more coal this year;



Efficient Factory Facilities Enable the Automatic Transportation Company to Make Prompt Shipments

THE STAR
Of the Power Transmission World
Watch Its Beams Spread



The SIX Points of SAVING—

POINT 2 BELTS

J. A. Dickerman who makes chairs in Gardner, Mass., put a

CORK INSERT PULLEY
on his blower in June, 1911.

The following August he wrote:

"We have in our factory a 40" exhaust fan driven by a 6" double belt. The pulley on the fan was 8" x 6". If we drew the belt as tight as possible, which would cause the bearings to heat, the fan would run about 24 hours without belt slip, then slip would set up and at the end of 48 hours the slip would be as high as 40 per cent. Belt dressings, etc., would do good only for a short time. The life of the belt was only about 12 months. This was with a smooth cast iron pulley.

We put on a Cork Insert pulley, the belt was loosened so that it was in fair running tightness. We have not had to touch the belt for 60 days and probably will not for 60 more. There is no slip whatever, we cannot see that the Inserts are worn in the least, and the efficiency of the fan has been increased so that it has more than paid for the price of the pulley twice over in the last 60 days.

We take pleasure in giving you this report on the Cork Insert pulley which we purchased from you on June 14th."

Over five years later, on October 10, 1916, he wrote:

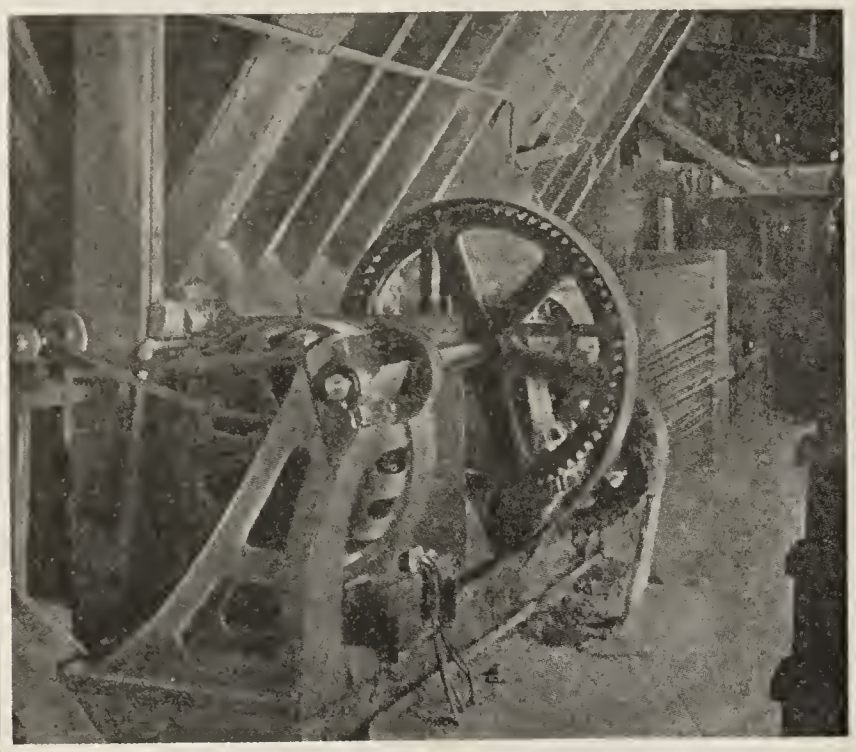
"Replying to your letter of October 9th, will say that the pulley we purchased from you in June, 1911 is running every day, same belt that was placed on the pulley when we started same. This belt is good for 5 years more. Even now it looks as good as it did when we first bought it. We have only taken this belt up once during the last year. We use a wire lace and it does not wear so that it breaks in a year, showing conclusively that there is practically no slip. These pulleys certainly are money savers as regards belts."

DO YOU RUN TIGHT BELTS?
WRITE US TO SHOW YOU how Cork Inserts can save your belts and cut operating costs *for you.*

THE CORK INSERT CO.
168 Federal street
BOSTON MASS.

THE SLIP-STOPPING PULLEY

SAY "I SAW IT IN" BRICK AND CLAY RECORD



"A Nuttall Cut Gear installed in our Plant has outlived three ordinary cast-tooth gears and is still good for long service."

NUTTALL
Cut Steel
GEARING

is a distinct forward step in brick machine construction. Any old gear won't do—a cast-tooth gear won't do if you are expecting maximum power transmission.

Cast-tooth gears are power-wasters—they are inefficient through friction and irregularities in tooth construction.

Substitute Nuttall Cut Steel Gears and you'll save on power cost and repairs.

Ask for Bulletin No. 19.

NUTTALL
PITTSBURGH

it is all sold. Now, "What are you going to do about it?" It's a serious problem, and the correct solution lies in your ability to burn less of it—not in your ability to buy it for less. This is a fact.

You must burn less to produce the present results or even better results. You know it can be done, and the chances are that you know how it can be done. Your loss may be attributed to procrastination.

It is almost useless to urge on you the advisability of using modern shaking grates—for you already know that it is a possibility for you to burn sometimes as high as fifty per cent. less fuel under your boilers, if you use the best type of shaking grates.

It is not useless, however, to urge you to act, and to act now, before the weeks pass, each week with an expense item twice as high as necessary on that big item, "Boiler Coal."

Sounds like a challenge, doesn't it? and it is. We mean it, for Martin Grates will produce remarkable results; they always have, and why shouldn't they do the same for you?

Figure at present prices what it would mean to you, to reduce your boiler room coal even ten per cent. Figure it in dollars and cents. Then figure it for twenty-five and fifty per cent. savings; these are nearer the probabilities.

Astounding and gratifying isn't it? The Martin Grate Company at 347 South Dearborn street, Chicago, Ill., will send you catalogs and real proofs of merit.

The International's New Man

There is one man in the clayworking industry who is so well known to clay products manufacturers that an introduction seems superfluous. This man is thoroly equipped with a practical knowledge of clayworkers' problems, having had experience in all lines of his chosen work.

George A. Anderson, who is now with the International Clay Machinery Company, is a native of East Liverpool, Ohio, where he spent his early days, finally graduating from Kenton College at Gambier, Ohio.

After securing his "Sheepskin" Mr. Anderson spent a number of profitable years in actual clayworking at East Liverpool and in that district and this peculiarly fits him to carry the message of "International Service" to the clayworkers of western Pennsylvania, Ohio and the Virginias.

After leaving the clay-manufacturing industry, Mr.



George A. Anderson
Representing the International Clay Machinery Co.



Anderson spent eight years among the clayworkers of the United States, selling machinery, which brought him in close contact with the problems of all clayworkers; and his ability to solve these problems has been put to the test many times and not found wanting.

Personally, Mr. Anderson is of a congenial nature and very popular with the multitude of brickmakers with whom he has come in contact in previous years. He will be located in the Pittsburgh and Ohio Valley district and is an enthusiastic exponent of International Service. We bespeak a friendly word for Mr. Anderson from those who do not know him; those who do not know him we feel sure will await his calls with great pleasure.

Announcement

The industrial world was greatly interested recently in the widespread announcement that Dodge Sales and Engineering Company of Mishawaka, Ind., has acquired the properties, and will control the manufacture of the entire products, of Oneida Steel Pulley Company and Keystone Steel Pulley Company of Oneida, N. Y. These two concerns will be operated in the future under one organization known as Dodge Steel Pulley Corporation of Oneida, N. Y.

This combination of interests was conceived and engineered by M. W. Mix, president of Dodge Sales and Engineering Company. Mr. Mix has been very prominent in American manufacturing circles for many years and was at one time president of the National Association of Manufacturers.

The Owens Continuous Tunnel Kiln

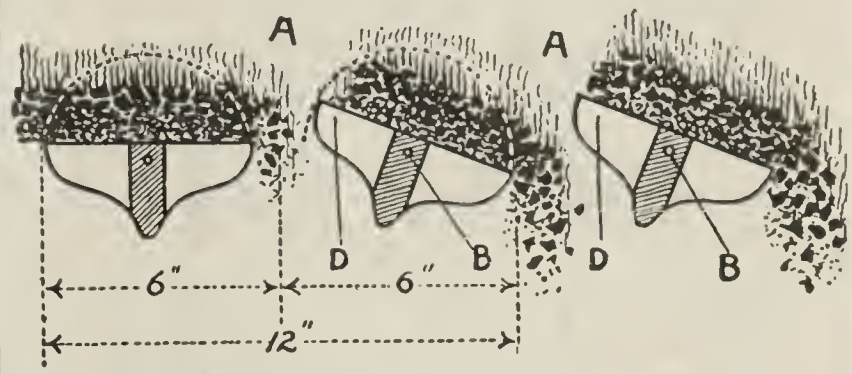
J. B. Owens of Zanesville, Ohio, and Metuchen, N. J., is one of the best known clay-products manufacturers in America, and the products his companies at these two locations have made find an instant market in all sections of the country.

At the Metuchen plant for the past year—the Empire Floor and Wall Tile Company—Mr. Owens has spent a great deal of money experimenting and developing a continuous tunnel kiln. An exhaustive research was first made as to the various types of kilns in use in Europe and America, and there was finally developed the J. B. Owens Continuous Tunnel Kiln, which for a considerable period now has been burning various kinds of ware at low cost.



M. W. Mix, President,
Dodge Sales and Engineering Company

ANY DUMPING GRATES

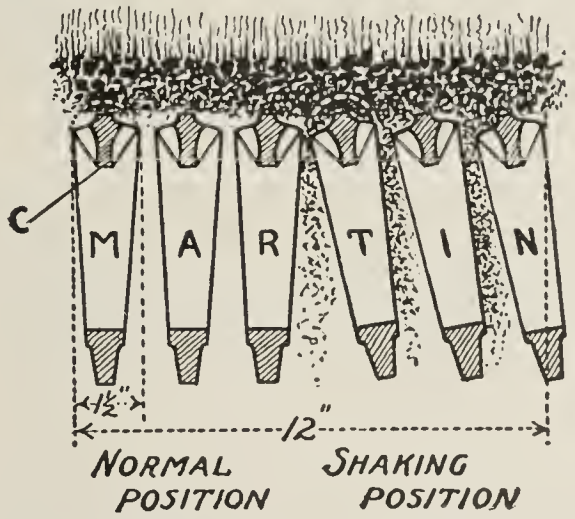


Normal Position Dumping Position

Old King Coal is a Greedy Old Soul

He's been soaring very high of late—
He steals and he cheats when a dumping grate he meets,
But he can't get past a

Martin Shaking Grate



The Martin Shaking Grate saves money by saving fuel; the dumping grate wastes money, because the grate bars have "choked" on unburned coal which the fireman must poke into the ash pit in order to return the grate to its normal position. Don't wait longer; find out now just what it will cost to install a Martin Shaking Grate in your present boilers.

IT'S no laughing matter, this difference between a dumping grate and a shaking grate.

In 1915 mine-run sold for $1.10 per ton on contract; now, in 1916, the same coal costs $4.50 per ton.

In 1915 slack screenings sold for 80c on contract; in 1916 the same coal costs $2.50 per ton.

Don't you see that every piece of coal that is dumped into your ash pit unburned, loses you four times what it did last year?

Can't you realize that a dumping grate loses you four times as much this year as it did in 1916?

The Martin Non-dumping Grate burns all the coal; burns slack screenings as well as mine run.

Figure it out! How long will it take you to pay for a Martin Grate **installed now** which will furnish more steam with cheaper coal than you are now using?

Figure out also how much you will save in a year by installing a grate that saves coal instead of dumping it unburned into the ash pit.

Isn't it worth investigation?

Martin Grate Company

347 S. Dearborn St., Chicago, Ill.



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

This kiln is adaptable for any fuel—gas, coal or oil. Remarkable economies in fuel have been effected and several practical tests have produced an average saving of 75 per cent. in fuel. There has also been a reduction of 50 per cent. in labor as well as a 75 per cent. saving in saggers where tile has been burned.

This kiln is comparatively inexpensive in construction and is recommended as a most economical method of burning all kinds of brick, hollow tile, sanitary ware and pottery. The waste heat from this kiln is utilized for drying green ware, also to generate steam for power and for heating the plant.

This kiln has been demonstrated to clay-products manufacturers who have called at the plant of the Empire Floor and Wall Tile Company at Metuchen, N. J. An inspection of the kiln is welcomed.

"The Watt 4 in 1 Truck"

There is hardly a manufacturing plant of any kind that could do altogether without a truck of some kind.

The truck shown here is known as the Watt 4 in 1 Truck and is manufactured by the Watt Mining Car Wheel Company, Barnesville, Ohio. This one truck is claimed to cover four of the most common truckage problems.

Trucks Nos. 2, 3 and 4, as you will note, are made from Truck No. 1 with the few simple changes as given below. Truck No. 1 has a channel frame body with a top of wood. The wheels are solid and pressed tight on the axle running in outside roller bearings.

We call your attention here to the four holes at either end of the body channels, like holes are also in opposite channels. The illustrations of Trucks Nos. 3 and 4 will show you the manner in which these holes are used.

Truck No. 2 is the same as Truck No. 1, except the wood top has been removed and a steel top fastened on. In the steel top, holes are provided for the use of steel stake pins.

Truck No. 3 is the same as Truck No. 1, except in this case a truck is required with outside stakes and all that is necessary is to attach the stake pockets to the extra holes in the body channels.

Truck No. 4 is the same as Truck No. 1, except the truck this time is transformed into a hauling car. To construct this all that is necessary is to bolt four standards to the body channels in the extra holes as provided, and to these standards the car sides are fastened. The ends of this car as shown are loose and lift out solid; however, other door arrangements can be used.

It would require considerable time and space to name the many uses of this truck, but a careful examination of the illustrations will reveal them more quickly.

Head of Duplex Graduate of Bike Business

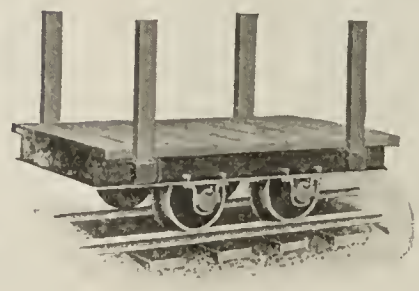
H. M. Lee, president of the Duplex Truck Company of Lansing, Mich., is one of the pioneers in the automobile business. Mr. Lee, like several other successful motor car executives, is a graduate of the bicycle business. He was formerly associated with the Pope Manufacturing Company of Hart-



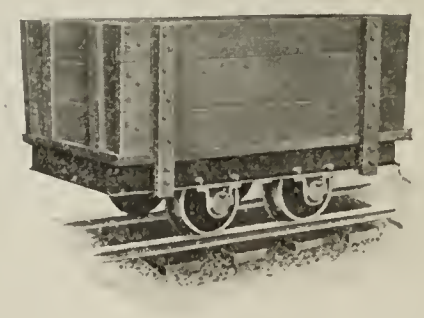
Truck No. 1



Truck No. 2



Truck No. 3



Truck No. 4

"The Watt 4 in 1 Truck," Explained in Foregoing Article

SAY "I SAW IT IN" BRICK AND CLAY RECORD



H. M. Lee, President,
Duplex Truck Company, Lansing, Michigan

ford, Conn., and as a member of the sales department sold thousands and thousands of bicycles to dealers throughout the country. Later, when the Pope company began the manufacture of automobiles, he sold motor cars, and established agencies for the Pope company in various sections of the United States.

Eleven years ago Mr. Lee became one of the important executives in the sales department of the Reo Motor Car Company. He assisted in building up a most efficient sales organization, and is well known to thousands of automobile men in the United States, as well as foreign countries.

Mr. Lee has played a prominent part in the development of the motor vehicles industry.

His broad experience in every department of automobile as well as motor truck building and marketing, together with his demonstration abilities as an executive organizer, peculiarly fit him for his position as a head of the Duplex organization.

The Duplex truck is the original four-wheel drive truck. For several years the Duplex truck was manufactured at Charlotte, Mich., with a small number of motor trucks being placed on the market each year.

Mr. Lee and his associates bought the Duplex Truck Company several months ago and organized a million-dollar corporation. The capacity of the factory at Charlotte, Mich., has been trebled and a new plant is about to be constructed in Lansing. The new factory will have a capacity of ten trucks a day.

Obituary

John Kasson Howe, a prominent resident of Albany, N. Y., died March 4th of angina pectoris, after a brief illness. Mr. Howe, while prominent in the social and business life of Albany, was best known to the engineering and contracting world through his association with The Osgood Dredge Company of Albany, N. Y., and The Osgood Company of Marion, Ohio.

The Osgood Dredge Company was organized by Mr. Howe in 1883 and this company obtained the original patents on the boom type dredge, which general design is followed by all the leading dredge builders at this time. Mr. Howe was secretary and treasurer of The Osgood Dredge Company until its consolidation with The Osgood Company, Marion, Ohio, when he became a director in the latter company and its eastern sales representative.

Mr. Howe was recognized as one of the leading dredge engineers of this country, and due to his long association with

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE
R. D. WOOD
AND COMPANY
Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.



You don't need an electrician or a chauffeur to operate the

Automatic Electric Elevating Platform Truck

One of our engineers will teach any man on your plant to run this truck perfectly in a very few minutes. It is easy to operate—also simple in construction, and does not require expert attention.

The operation of this truck on your plant will go a long way toward eliminating the troubles confronting you this season on account of the labor shortage.

It will also serve to "speed up" your kiln men because it never "loafs" but keeps constantly on the move. This is done by the use of portable platforms, as shown in the photo below.

Why not let us give you an estimate of what we'll guarantee to do for you?

The Automatic Transportation Co.
2933-2965 Main Street
Buffalo, N. Y.

Pioneer Manufacturers of Electric Storage Battery Trucks, and the Only Truck Manufacturers Awarded Gold Medal at San Francisco Exposition.



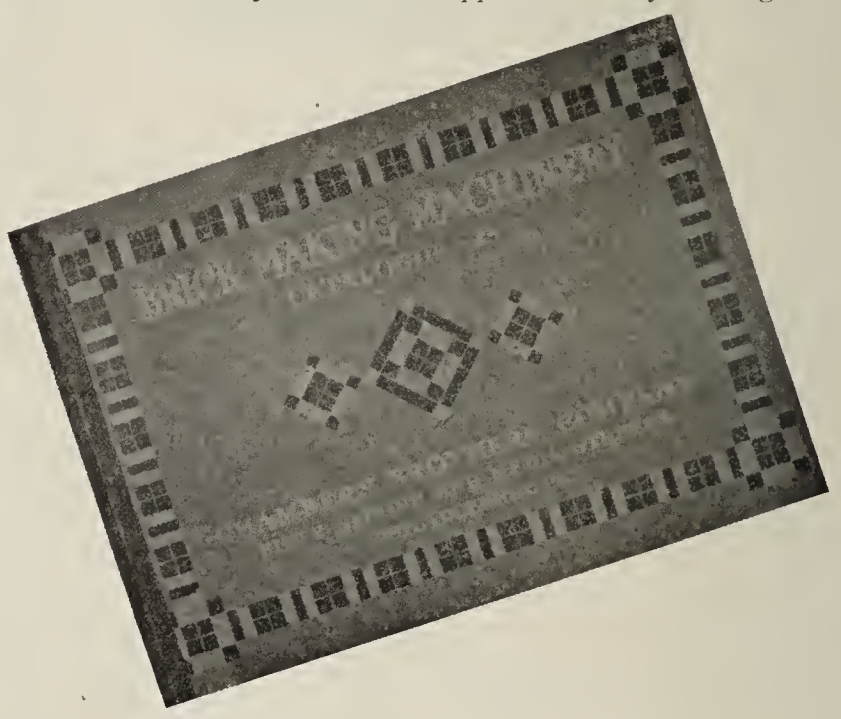
the development of such machines, had a very wide acquaintance among contractors and government officials.

While Mr. Howe was always actively engaged in business, he found time nevertheless to do much religious and charitable work, being an influential member of the First Presbyterian Church and president and a member of the Board of Trustees of the Albany Orphan Asylum. It was largely through his efforts that the latter institution has been brought to its present high degree of success. Mr. Howe was an active member of a number of the leading clubs of Albany and a charter member of the University Club of New York and a graduate of Yale University in the class 1871.

New Chambers Catalog

Catalog No. 23 of Chambers Brothers Company of Philadelphia is one of the most complete and comprehensive books that has ever been issued on brickmaking machinery. It contains 136 pages illustrating brick machines, augers, granulators, represses, cutters, crushers, etc. It also has much valuable data that every brick man needs to have in his library for frequent use.

This company was established in 1857—over fifty years ago—and its machinery has been shipped into clayworking sec-



New Chambers Catalog Just Off the Press

tions in all parts of the world. Its product is recognized as the very highest standard, and it has been a most important factor in the building up of the clay-products industry and increasing the efficiency of brick plants.

A copy of this catalog should be in the hands of every brick manufacturer, no matter where located, or whether contemplating an immediate or future purchase of brick or tile machinery.

The Homestead Valve Manufacturing Company, of Homestead, Pa., announces the appointment of the following representatives to have exclusive representation of the Homestead Quarter-Turn Cock and the "Hovalco" Angle Blow-Off Valve in their immediate vicinities: Queen City Supply Company, Cincinnati, Ohio, and Root Neal & Company, Buffalo, N. Y.

These representatives carry a large stock of Homestead Valves on hand at all times, and are in a position to quote on all lines of Homestead manufacture.

The 13,000 tons daily capacity of the Rutledge & Taylor Coal Company, St. Louis, together with the car supply of two railroads (Big Four and C. & E. I.) enables them to furnish coal on time. Thru freight rates are quoted promptly.

Crimora Manganese Corporation, 15 Broad Street, New York City, announce the removal of their executive offices to 30 East 42nd Street.



The EDITOR'S CORNER

Technical Investigation Needs Your Support

IN NEW YORK, at the recent annual meeting of the National Brick Manufacturers' Association, A. V. Bleininger of the United States Bureau of Standards, read a very instructive paper entitled, "Properties of Structural Clay Products." In his paper the popular professor laid bare, in a very kindly manner, some of the facts concerning the poor support which the Bureau of Standards has been receiving from the nation's brickmakers in the matter of technical investigation.

Mr. Bleininger's appeal for better co-operation, it seems, made a deep impression upon a good many of us, with the result that within the last few weeks a great improvement has taken place in the quantity of samples furnished, these reaching a value of hundreds of dollars.

Mr. Bleininger made it clear to those who attended the session at which he spoke, that the bureau did not desire and could not accept financial assistance for the work it was doing for the industry, but that it only wished a more prompt compliance with its requests for samples.

GETS $250 A YEAR

There is, however, another body or committee which is carrying on technical investigation work for clay products manufacturers, particularly those who make brick, of which Professor Edward Orton, Jr., is chairman. This committee is known as the Technical Investigation Committee of the National Brick Manufacturers' Association and is receiving only $250 a year with which to finance its efforts.

At the meeting of the Technical Investigation Committee in New York it was decided to ask the association for a more liberal support of Professor Orton's work, and there is little doubt but that the association will approve of the request, since its executive committee strongly favors this work.

With the small dues of the association, it is inconceivable how it can furnish a great deal more financial support than it has in the past. For this reason it is our belief that the additional funds required must take the form of voluntary contributions on the part of those members of the industry who appreciate the importance of technical investigation work. As a starter, "Brick and Clay Record" is sending its check to Professor Orton for $100 and trusts that many more will follow suit.

It seems a shame that so little money is available for such an important task. In fact, the amounts that have been furnished in the past by the association have far from taken care of the needs of the work, and disliking to see it suffer in any way, Professor Orton has himself paid $1,000 of his own money to carry on his investigations for the brick manufacturer.

VALUE OF TECHNICAL WORK

Ross Purdy, of Worcester, Mass., struck the keynote in discussing the importance of technical investigation at the recent convention by saying that its value far exceeded that of any other phase of brick promotion.

A concrete example of how much authoritative information on the structural properties of brick is needed among architects and engineers is shown in the article published in the March 13, 1917, issue of "Brick and Clay Record," entitled, "Clay Products in Engineering Construction," by E. H. Darling, M. E. Mr. Darling makes the amazing statement that "to carry a given load we have to use two or three times as much brickwork as we would if we could have the same confidence in it that we have in steel." He further says: "By-laws will allow us to put about four times the load on plain concrete that is permitted on brickwork, and the cost of concrete in piers and walls is approximately the same as brickwork."

It is up to us to find out whether it is lack of information on the part of those formulating building codes, or what it is, that is keeping brick down as a structural material. If it is a lack of information, then we should certainly get busy and see to it that false impressions among engineers regarding brickwork are quickly cleared up and the true information furnished in their place. This is a matter that is of most vital importance to us, inasmuch as it affects our market, and we should lose no time in getting under way a bigger program, with sufficient money to finance it, that will put brick definitely and finally in the high and indisputable position where it rightfully belongs.

The Tariff Commission Should Include a Business Man

THERE IS NO SPACE on this page for the discussion of political issues. However, what we are about to consider, namely, the tariff, is destined to be no longer a plaything of politics, both branches of Congress having agreed that this important matter should be placed in the hands of a non-partisan commission.

During the last session of Congress, the President sent to the Senate the names of the six members of the tariff commission which he believes are the proper parties to handle the subject. The members, with their party affiliation, as described at the White House, are:

Professor Frank William Taussig, of Harvard University; Independent; chairman.

Daniel Calhoun Roper, of McCall, S. C., Ex-First Assistant Postmaster General; Democrat.

David J. Lewis, of Cumberland, Md., Ex-Member of Congress; Democrat.

William Kent, of Kentfield, Cal., Ex-Member of Congress; Independent.

William S. Culbertson, of Emporia, Kan., special counsel for the Federal Trade Commission; Republican.

Edward P. Costigan, of Denver, Colo., unsuccessful "Bull Moose" candidate for Governor of Colorado; Progressive-Republican.

It does not require a second glance to see that no provision has been made for a manufacturer or merchant on this commission.

We do not believe it is necessary to show any argument why such a representative should be included. We believe that every right-minded citizen must admit that a commission which is to decide issues of vital importance to the business man surely should have a representation of such interests.

While the appointments were sent to the Senate during its special session this year, none of these men were confirmed. Their names will be taken up in the session which began on Monday, April 2.

"Brick and Clay Record's" readers, as business men, have an interest in the personnel of this commission and should make their voice felt in the Senate when this matter comes up.

CO-OPERATION *between* *the* KEY *to* INDUS-

In the Midst of Growing Unrest in the Ranks of Labor, Means for Bringing About a Closer and a More Pleasant

By Cleve

WHEN NEARLY ALL OF EUROPE was clamoring for war, during July and August of 1914, and was calling its male citizens to defend their respective native lands, thousands of workmen in the United States and Canada cast aside their tools and left their jobs to join the colors. It was not long afterward that the munition factories began throwing out the drag-net for men at high wages, with the result that very soon a scarcity of help was noticeable in most clay plants.



CLEVE HARTZELL
Secretary-Treasurer, What Cheer (Ia.) Clay Products Company's Social and Sick Benefit Association

During the past year, particularly, labor shortage has been no small item of trouble thruout the entire industry. In fact, some plants manufacturing brick and tile have been compelled to cease operations until better conditions exist, but the mere fact that there has not been a sufficient number of men available has not alone caused all of the trouble, for living costs began to ascend, compelling the workmen to demand higher wages or get out of existence. This has resulted in many disputes and controversies between the employer and the employe, and has caused much bitter feeling. During this period of unadjusted labor difficulties much money has been lost both by the workmen and the manufacturers. The one great industrial fault of the past has been that capital has been pitted against labor, and as long as this condition exists, there will be dissatisfaction, both on the part of the employer and the employe, resulting in strikes and closed factories.

CO-OPERATION IS THE IDEAL SOLUTION

The writer is a firm believer in scientific management, bonus systems and a closer relationship between employer and employe by means of an association for the welfare of both parties. If these three systems are handled rightly and developed along proper lines, the writer believes that strikes and bitter feeling will be things of the past. Already several good and helpful articles touching upon scientific management and bonus systems have appeared in the columns of "Brick and Clay Record." These are available to the clay plant owner who is interested in these particular matters, as every clayworker should be. In the plants where such systems are in actual use, it is apparent they have increased the efficiency and are the real cause of a larger and better output of ware.

In connection with the above named systems, the writer believes there should be an organization known, for instance, as the "Jonesville Clay Products Company's Employes Social and Sick Benefit Association," or "Employes' Mutual Benefit Association," or something similar. The writer is secretary and treasurer of such an organization and knows it to be a great factor in promoting the interests of the business. In fact, many of the largest and most progressive concerns in this country would not think of being without their employes' benefit associations.

SOME FEATURES OF THE ORGANIZATION

Such an organization as has been mentioned serves in three different and distinct directions, namely, in promoting a better social feeling among the employes, in creating a benefit fund and in the actual saving of money.

Touching upon the social side, the organization can have clubrooms for the convenience of its members, with good educational reading and harmless amusements; can arrange to hold picnics, summer excursions, winter gatherings and an employes' field day, making the whole plant one happy family.

Passing over the benefit feature of such an organization, which will be treated fully within a few paragraphs, and coming to another important feature, it might be said that it is essential to the employer that his employes get the necessities of life at the right price. The

EMPLOYER *and* EMPLOYE TRIAL PROGRESS

Employes Social and Sick Benefit Associations Offer a Relationship Between Employer and Clay Plant Employe

Hartzell

plant owner buys his coal and other supplies in large quantities and therefore gets the lowest prices. Why could not the same principle be applied to the purchase of food and other commodities, the association purchasing these in large quantities for its members, thereby making possible a lower price to them. The writer believes that in the fall of the year when prices are lowest on potatoes, vegetables, coal, and so forth, the organization could buy these in carload lots and store them away for the winter months. As has already been mentioned, this would mean much for the members. A concrete example is contained in the price of potatoes last fall, when the tubers were selling from seventy-five to eighty cents a bushel, whereas today they are selling for $3.60 per bushel in many parts of the country and this price is still advancing. There are many other things that such an association could handle with profit to its members. Such cooperation is a great thing.

WORKINGMEN'S BENEFIT FUNDS INVESTIGATED

Several years ago the various forms of workingmen's benefit association funds were investigated. The records of about twelve hundred such organizations were examined and all were found to be on a solid financial footing, conducted along business lines, and designed for the benefit of wage earners or persons on small salaries, as well as furnishing a sufficient fund to pay the loss of wages occasioned by disability.

DISABILITY CERTIFICATE

Jonesville Clay Products Company's Employes Sick Benefit Association.

This is to certify that.....

has been incapacitated from.....

to..... for reason

of

.....

Attending Physician.

Specimen of Form Used for the Authorization of Sick Benefit Payments

There are several classes of these organizations. Some are maintained as an adjunct to labor unions; others are limited to employes of a particular establishment or factory. Both the labor union and establishment funds are mutual.

HEALTH CERTIFICATE

Jonesville Clay Products Company's Employes Sick Benefit Association.

I hereby certify that.....

has been under my care from.....

to..... but at the issuance of this certificate is to the best of my knowledge capable of resuming work.

.....

Attending Physician.

Specimen of Form Used for Notifying the Association That Sick or Injured Member is No Longer Entitled to Sick Benefit Payments

Among the different funds there are three classes of management, namely, that which is controlled entirely by the company, by the employes, or jointly by the company and the employes. The writer believes the last named to be the most successful as the company usually pays in a certain amount of dues as well as to the employes. This helps to build up the treasury and gives added confidence to the workmen, bringing about a closer relationship for both. In many cases, the company pays the expense of the social activities.

These associations all have to have rules as to benefits and as to those persons who are eligible to become members. The industrial or establishment associations are of more interest to clayworkers than the other varieties mentioned. Among the twelve hundred funds investigated, as above mentioned, there were 461 of this last mentioned class.

Following is a chart of the 461 funds showing the number in which membership was compulsory and those in which it is voluntary:

Management of Funds	Compulsory	Voluntary	Pension
By employes	18	323	
By the company	17	12	3
Jointly	35	53	
Total	70	388	3

The above chart shows that the voluntary membership was the most popular. However, in many cases it is almost necessary to have it compulsory where the number of employes is small for there are a great many people who do not realize what sickness means until they are compelled to face it and are not sufficiently far-sighted to prepare for the future.

Such people are usually willing to allow the association to assist them when they are in trouble with the promise of joining when they recover, and then like God and the doctor, the association is usually forgotten.

The benefit feature of these associations usually takes the form of a periodical payment either for sickness or accident, and a lump sum payment for death. Of the 461 funds above mentioned, 265 were found to pay for both temporary disability and death. Thirteen paid for death only, and three paid for superannuation. The remaining organizations paid two or more of the several kinds of benefits.

An interesting tabulation in this connection follows:

Number of funds paying each kind of benefits.

Benefits	No. of funds
Temporary Disability	429
Death of Members	419
Permanent Disability	54

Causes for which benefits are paid.

	Employes	Establishment	Jointly	Total
Accident only	5	1		6
Accident on duty	13	20	18	51
Sickness and accident	291	5	59	355
Sickness and accident on duty	8		7	15
Sickness and accident not on duty	2			2
Total	319	26	84	429

The funds investigated represented establishments having approximately 750,000 employes. Of this number 440,000 were members of organizations the funds of which were managed by the employes, while 90,000 were members of organizations in which the funds were managed by the corporation, and 220,000 in organizations managed jointly.

Since the enactment of compensation and insurance legislation which takes care of employes who meet with accidents while on duty, the associations provide for members that are disabled by accident while off duty and during the two weeks not provided for by the insurance companies immediately following the accident. Each association has a sick committee to investigate such cases and physicians are provided with certificates to fill in as to when the sickness began, when the injured member is able to resume work, and sick benefits are paid according to the doctor's certificates, samples of which are shown on the preceding page.

The amount of weekly benefits averages from $5 to $10, depending upon what dues are charged. Those having death benefits usually set a fixed sum of from $50 to $100, the exact amount being decided upon by a vote of the membership. There are also some sick benefit funds that pay for hospital expenses, medicine and physician's services. The writer was at one time in a sick benefit club of this class and paid a dollar a month dues. He had been a member for two years when he was taken ill with typhoid fever and was disabled for five months. The hospital and doctor bill was more than $300. This organization was managed entirely by the clay products manufacturing company and dues were deducted from the member's wages. It was compulsory for all employes to join.

THRIFT CLUB FEATURE

Something has already been said concerning the possibilities for benefit associations saving considerable money for their members. In this connection it should be remembered that there is an old adage which tells us it is not what we earn that counts but what we save. This applies very well to the thrift clubs of benefit associations. It is very surprising how much money can be saved in a very short while by members of these organizations. When it comes to buying, money talks.

We will take an association with, say 150 members. Undoubtedly, half of these are willing to join the thrift club. Any member may authorize the association to deduct from his wages 75 cents, a dollar or $1.25 a week to be put into the treasury and left there for at least from fifteen to twenty weeks. We will say that this will draw interest at four per cent, which can be added to the sum deposited. Such a club or feature of a benefit association appeals more to married men who have families to provide for, nevertheless, there are single men that are saving money in this way. Suppose that each member in the club would deposit $5 a month in the treasury, which is left there for five months. The 75 members then would have deposited $1,875 which is available, besides the interest. Most of these men have families to take care of and this money could be used to obtain their winter supplies as cheaply as possible. A very substantial reduction in price could be obtained by the members for provisions by offering a wholesale house an order for $1,875 or whatever may be the total. On the other hand, any local retail merchant would take care of such an order and handle it, with the employes still getting a good price.

These thrift clubs are an actual feature of many benefit associations and have met with great favor. It is remarkable to learn the different items that can be purchased with money saved in this way. Some of the members buy clothes, some pay debts, and in one instance, an employe saved enough to buy an automobile (flivver?).

Any man that is a satisfied member of the employes benefit association and thrift club can be relied upon as one who will take an active interest in his work on the plant. Many of the old associations that have been receiving money for several years and have therefore accumulated quite a sum which was drawing interest, decided that it was not necessary to have so much money in the bank and declared a dividend to the members. It was not long until the membership increased fifty per cent. This was, of course, in associations where membership was not compulsory. It can be easily seen how such a dividend would also operate to the advantage of the employer for employes with sufficient money to meet their needs very seldom are led to make unreasonable demands for wages.

A NATIONAL EMPLOYES' BENEFIT ASSOCIATION

In the foregoing paragraphs the writer has endeavored to demonstrate the great amount of good there is in a local benefit association. Regardless of whether or not the employe belongs to one or more lodges or carries insurance, it is an excellent policy to be a member of an employes' association. Speaking from experience, the writer feels justified in advising fellow clayworkers that these associations are great benefactors. Now I wish to discuss and place before the readers of "Brick and Clay Record" a proposition for forming a national clay products employes' benefit association. Such an organization could be supported by the local organizations. The main office could be located, for instance, in Chicago or St. Louis. This organization would be for members who are employed in the manufacture of clay products. As most local associations require members to be such from three to six months, or sometimes even a year, before being entitled to benefits, therefore, when a clay plant worker changes his position he loses the benefit of the money which he has paid in the association at the point where he last worked and must be a member of the new one the length of time stated before being eligible for benefits. A national association could be so arranged as to eliminate this loss when a neces-

sary change is made. The employe might be injured before he was eligible to receive benefits in the new organization, which would be a very serious handicap to him.

TYPICAL CONSTITUTION AND BY-LAWS

As a means for furnishing more detail information to those who are interested in employes' benefit associations, the constitution and by-laws of the What Cheer (Iowa) Clay Products Company's Employes Social and Sick Benefit Association are given below in their entirety:

Article I. Name

The name of this organization shall be What Cheer Clay Products Company's Employes Social and Sick Benefit Association.

Article II. Objects

To provide opportunities for a closer social relationship amongst the employes of the company, their wives and families, by means of a clubroom or rooms conveniently located in What Cheer, Iowa.

To increase the efficiency of each member by means of educational discussions, lectures, etc.

To encourage each member to take a greater interest in his civic duties, both local and national.

To provide a fund from which to pay its members a sick benefit at such time as they are prevented from working thru sickness.

Article III. Membership

The membership in this association is limited to the employes of the What Cheer Clay Products Company.

Any member leaving the employ of the company automatically ceases to be a member of this association, and loses all rights and title in any funds the association may accumulate.

Any member may be expelled from the association upon recommendation of five or more members, and after an affirmative vote of the members present at a special meeting called for that purpose, or at a regular meeting at which not less than two-fifths of the members are present.

Article IV. Fees and Dues

There shall be no entrance fee.

The dues of the association shall be eighty cents per month

(*Continued on Page* 782)

OREGON CLAYWORKERS HOLD RECORD MEETING

ON MARCH 15 and 16, the members of the Oregon Clayworkers' Association assembled in Eugene for their third annual meeting. The attendance was the largest ever enjoyed by the Oregon association and the meeting was a success from every point of view. An elaborate program had been prepared for the delegates, embracing the discussion of many subjects of vital importance.

One of the principal addresses delivered at the two-day get-together was that on "Geology and Clay Formation," by Dr. Warren D. Smith, head of the Department of Geology of the University of Oregon. Another paper included in the same session treated the subject of "Clay Products for Farmers' Use," and was read by W. E. Wilson of the Salem Tile and Mercantile Company. Mr. Wilson showed the tremendous market for clay products on Oregon's farms and outlined the comparative cost of burned clay and wood farm building construction.

CO-OPERATION AND PLANT INSPECTION URGED

During the Thursday evening session, Professor H. M. Parks, director of the Bureau of Mines, delivered a very interesting talk on "The State Bureau of Mines and the Oregon Clayworker," in which he outlined the work being done by the bureau and indicated wherein it might be and is of the greatest assistance to the clay products manufacturer. Following this paper, an inspiring talk on the benefits to be derived from co-operation was made in an address entitled "Co-operation Among Clayworkers and the Benefits to be Derived," by T. S. Mann of the Pacific Stoneware Company at Portland. During his talk, Mr. Mann urged the members of the association to establish a close personal relationship among themselves and make more numerous and extensive inspection trips to the plants of fellow members. When it is recalled that it was but a year ago that Mr. Mann made an inspection trip that carried him thru many of the big clayworking plants of the East and Middle West, and during which he attended the short course in Ceramic Engineering, held at the University of Illinois, it is easily seen that he was in a position to lend some personal observances to the subject of co-operation and plant inspection.

NEED FOR COST ACCOUNTING EMPHASIZED

The need for an accurate and efficient cost accounting system for Oregon clay plants was emphasized in an address delivered by O. K. Edwards of the Pacific Face Brick Company, of Willamina, who pointed out that as long as goods was marketed at prices which were based on nothing more than a guess at manufacturing costs, the price cutting evil would continue and profitable business would be made impossible. "What Eastern Clayworkers Are Doing For Their Business," was the title of a paper read by S. Geijsbeek of Portland. In his talk, Mr. Geijsbeek related many ideas and experiences gained from an extensive trip thru the East, taken last year.

The following officers will serve for the coming year: L. E. Kern, president; W. C. Corbett, vice president, and S. Geijsbeek, secretary and treasurer. T. S. Mann was chosen as a director. A summer meeting will be held in Porland, at which time a trip will be made to Puget Sound clay plants, according to the plans laid by the Oregon clayworkers at their third and most successful annual meeting.

Southern Tile Manufacturers to Organize

Organization of an association of manufacturers of hollow tile in the South is the purpose of a meeting which is to be held at Birmingham, Ala., on April 18. There are fourteen hollow tile manufacturing plants in the territory south of the Ohio and west of the Mississippi rivers, every state except Mississippi having at least one. These plants, according to James T. Howington, of Louisville, Ky., general manager of the Coral Ridge Clay Products Company, will all be represented, and it is hoped that a strong and useful organization will be the result.

Much correspondence on the subject has been had in the past several weeks. Probably the first matter of common interest which would get the attention of an association of southern tile manufacturers would be freight rates. Rates in the South at this time are in a rather chaotic condition. There are commodity rates to only a few points from the plants and, even in such cases, the rate for tile is from fifty to one hundred per cent. higher than the rate on brick. There has never been any concerted attempt on the part of the tile manufacturers to obtain equitable and favorable rates and, while an undertaking of this kind is one that will involve a great deal of work, it will be conducted with the certainty of general benefits if the relief desired can be obtained.

Gives Free Life Insurance to Employes

In line with its endeavor to manufacture a product high in quality, to establish factories which are first-class with regard to safety and sanitary conditions, to attract and retain good employes, and to pay them the highest possible remuneration and maintain toward them a co-operative and constructive interest, the Elk Fire Brick Company, of St. Marys, Pa., has taken another forward step which involves the maintenance for all employes, without expense to them, of life insurance for the benefit of their wives, children, mothers, sisters, or other dependents. This step has been taken to show the company's appreciation for the loyalty and efficiency of its employes in various capacities, thru the unusual and perplexing industrial conditions of the past few years.

According to the announcement sent out to its employes by the Elk Fire Brick Company, the plan of insurance protection may be outlined as follows: (1) The policy becomes effective April 1, 1917. (2) All employes who have been continuously in the employ of the company for a period of three months or more will be covered under this policy. (3) All employes will be insured without medical examination. (4) The amount of insurance on each will be $500. (5) The amount of each certificate will be increased January 1, 1918, to $600 to all employes who are insured under the policy on July 1, 1917, and who continue in the employ of the concern until December 31, 1917. (6) The insurance will be payable to anyone whom the employe may designate as his beneficiary. (7) The Elk Fire Brick Company pays all costs of the insurance and furnishes it free of charge to employes. (8) The Elk Fire Brick Company reserves the right to make such changes in this insurance plan on April 1, 1918, as may seem best for the interest of the employes and the company. (9) This plan of insurance has no legal bearing on compensation and does not affect a workman's right under the Compensation Act in any manner. This is an additional item for the employe in case of death, either accidental or natural. (10) This plan does not have any bearing on the wages now being paid by the company or on wages paid in the future; it is not given in lieu of wages, but is a form of protection for the workman and his family. (11) In case of total disability the amount of insurance carried on an employe's life will be payable to him in installments, the details of which will be given later.

In view of the fact that many would be unable to pass the medical examination for individual life insurance, even if the cost of such insurance was not so great, or even if they were able to assume the burden of a life insurance policy upon their income, the company feels particularly gratified that in its arrangement with the Travelers Insurance Company of Hartford, Conn., insurance will be granted to all employes, according to the plan named, without medical examination.

It is hoped the plan will prove a success and that the Elk Fire Brick Company, thru its board of directors will be able to announce further plans along the same line at the expiration of one year from the date the insurance becomes effective. It will be noted that the only requirement involved in the plan is that the employe be with the company for three months, the insurance automatically terminating when the employe severs his connection with the company.

This is the second large fire brick concern within a year that has placed life insurance for its employes, without cost to them while they remain a part of the company.

Drain Tile in a New Role

A rather unusual use of drain tile is reported from New Albany, Ind., where Anders Rasmussen, proprietor of a large greenhouse, employs the tile as casings for concrete posts to support his concrete greenhouse benches on which the plants are grown. Six-inch tile are used generally. set in the forms when the benches are poured, and resting on previously constructed bases. When the concrete sets, the wooden forms are removed but the tile remain encircling the columns of concrete, which support the bench. Mr. Rasmussen has just completed replacing his old cypress benches with new concrete benches and has made use of a large quantity of the tile in this manner.

New York Dealers Elect Officers

At the annual meeting of the Association of Dealers in Masons' Building Materials of New York, N. Y., held recently, the following officers and directors were unanimously elected for the ensuing year: Francis Howland, president; William H. Schmohl, vice president, and Nathan Peck, treasurer. The directors chosen were Francis N. Howland, William H. Schmohl, Nathan Peck, John H. Mahnken, William K. Hammond, John Wilson, William H. Barnes, Ernst Braun, Wright D. Goss, John C. McNamara, John J. Bell, Andrew J. Brislin, Stephen V. Duffy, Frank E. Wise, and Frank D. Creamer.

THE LAND MARK THAT FAILED TO MARK



Goldberg in the Chicago "Daily News"

C. F. Miller Again in the Ranks.

After a sojourn outside of the field of clayworking that has extended over a period of about ten years, C. F. Miller again locks hands with manufacturers and dealers engaged in the business of producing and selling clay products and makes his re-entrance upon the stage as general manager of the Darlington (Pa.) Brick and Mining Company.



C. F. MILLER
General Manager of the Darlington (Pa.) Brick and Mining Company

Mr. Miller was formerly manager of the Cleveland Builders' Supply Company, resigning his position with that concern at the time of the consolidation of the Masons' Supply Company, Kelly Island Lime and Transportation Company, and the Cleveland Builders' Supply Company, to become interested in the manufacture of mortar color and a retarder for plaster.

It is with great pleasure, therefore, that we present herewith a picture of the long lost member and usher him back amongst his old friends in the clay products industry.

* * *

Hurley Shows Value of Trade Press in Closing Official Utterance

"What is the explanation?"

It is Edward N. Hurley, former chairman of the Federal Trade Commission, talking in an article which is reported as being dictated by him while visiting at the office of "Printers' Ink," a few days before he retired from the chairmanship, and which article appears in the March 29 issue of that publication. He is talking about the difference in viewpoint between the so-called "big" business man and the individual who lacks what in politics is called statesmanship.

Mr. Hurley answers his own question by stating that: "It does not lie in the difference of native intelligence. Rather it means the existence of a different feeling by these men in the relation of their business to business as a whole."

He then proceeds to explain what he means by such a statement, reciting some of the experiences which he had as a member and as chairman of the commission.

In this capacity he had the enlightening experience of learning that one reason why the "big" business man is big is that his mind is always open to new ideas. He spends considerable time in digging up all of the available information pertaining to his business and then proceeds to use it. In speaking of a specific case of which he knew, wherein the corporation in question was making increasing profits with the years, and referring to the man at the head of this business, he says: "His department for obtaining business information would rival that of the biggest news-gathering association in the United States."

Of course, every business man cannot afford such an organization, in fact, very few can. This is where the opportunity of the trade or technical journal develops. Concerning the business press, Mr. Hurley says in his article:

"Business men should read more and study more. Some manufacturers know the mine of information and of suggestion which can be found in the great trade and technical journals of the country. Many of them do not hunt up this information, accessible tho it is."

This is a significant climax to one of the last official public utterances made by one of the most broad-minded and public spirited business men that recent years have produced. It is something that should stick in the mind of every manufacturer or merchant, and lead him to look upon his trade paper as a more valuable aid in his business.

* * *

Cleanliness in and Around the Factory

"We thought the biscuit and glost folk had done just about all that could be done to make a department look spick and span, but we would invite you one and all to just take a peep into the mold shop," says the March 16 issue of the "Anchor."

"This is truly the parlor of the factory and we take this opportunity to compliment the men of this department on the efforts in making their department spotless.

"We cannot begin to describe it. We do know that they have set a standard which will be hard to beat when any other department begins to brighten up in the future.

"The efforts of the biscuit, glost and mold departments are to be commended and we hope other departments will take notice and follow suit.

"Now, who is next?"

While the above item refers to a pottery plant, much of its message can be applied to almost any clayworking factory.

In showing some pictures of a Hudson River brick yard to a group of clay products manufacturers recently, Wm. K. Hammond, of New York called attention to the immaculate condition of the ground around the kilns on that particular yard. There were no culls lying around, stray wheelbarrows were not to be seen and all tools not in use had been removed and placed in their proper receptacles.

Cleanliness around a clay plant means the reduction of hazards and the prevention of accidents. The stepping upon a board with a nail in it which has been carelessly left by a workman, may result in the man losing a limb. In like manner, a fall over an article out of place and in the way, may be followed by a serious injury.

Spring is upon us. Soon we will see the slogan: "Clean Up and Paint Up." Why not take this to heart, Mr. Superintendent, and see that the men clean up the yard.

* * *

The Victoria (B. C.) Brick Company, whose plant has been idle for the past two years, is to resume operations at once. The company is planning to manufacture between 1,000,000 and 2,000,000 brick during the summer, chiefly for export to other parts of British Columbia. About twenty-five men will be employed at the plant.



SOME PHOTOGRAPHIC PROOFS OF THE STABILITY OF BRICK CONSTRUCTION, AS TESTED BY A CYCLONE

The Center Group of Four Pictures Shows the Extent of the Damage Done by the Atmospheric Phenomenon to Many of Cincinnati's Brick Homes. Altho Strong Enough to Tear Off Their Porches and Dislodge Trees Immediately in Front of the Structures, the Cyclone Had Little Effect Upon the Brickwork Itself. The Two Upper and Lower Pictures, On the Other Hand, Give Some Idea of the Manner in Which the Cyclone Handled Frame Structures in Its Rampage Across Two States

BRICK *and* FRAME *in* "QUEEN CITY" CYCLONE

Pictures Taken Following the Passing of Funnel-Shaped Cloud Reveal an Interesting and Instructive Comparison

LEAVING IN ITS WAKE scores of dead and injured, and millions of dollars worth of destroyed property, a cyclone of terrific force swept across the southern portion of the state of Indiana on Sunday afternoon, March 12, penetrating into the state of Ohio as far as Cincinnati.

The storm traveled, in its rush of destruction, over a course about sixty miles in length, gathering force at a point about five miles north of Newcastle and spending itself in the destruction of three lives and many thousands of dollars worth of property at the Ohio city.

A toll of the missing and dead revealed a casualty list of about one hundred and fifty persons, while the estimated damage to property amounted to more than one million dollars. By far the greater part of the loss in life and property was suffered by the city of Newcastle, where the tornado rose to the height of its fury, killing nineteen people outright, injuring more than one hundred and fifty, and causing the destruction of about two hundred homes.

Passing on from this thriving little city of 18,000 population, the funnel-shaped cloud, filled with the debris that it had picked up in its rampage thru Newcastle, plowed thru Richmond, where it killed two children and destroyed more property. Speeding on from there, it swept thru Ashland, causing another fatality, and from there it continued on its errand of devastation to the city of Cincinnati, where it finally expired after leaving as a monument to its activities three dead and many homes destroyed.

BRICK CONSTRUCTION RESISTS CYCLONE

Thru the courtesy and thoughtfulness of John M. Stoner, president of the Cincinnati (Ohio) Clay Products and Supply Company, we are enabled to present to the brick manufacturing industry at large some photographs which were taken at Cincinnati and which show, in an indisputable manner, the cyclone-resistant qualities of brick construction. We are also reproducing herewith some photographs, also sent us by Mr. Stoner, showing the affect of the tornado upon the frame houses which stood in its path.

In all, about one hundred and forty buildings in Cincinnati were destroyed, the majority of which were located in the city's exclusive residential districts of Hyde Park and Linwood. Both brick and frame structures were subjected to much the same atmospheric conditions, but the manner in which they withstood the impact of the gale spelled the difference between total destruction on the one hand and about ninety-five per cent. salvage on the other. That this statement is not in the least exaggerated can be seen by a reference to the photographs reproduced on the opposite page.

The amount of damage done to brick houses was in proportion to the extent that lumber entered into their construction, the only portions on most of the buildings that suffered destruction being porches, roofs, and similar features which the tornado found easy prey. In most cases, the original brick masonry work was almost undisturbed and showed but little damage from its experience with the destructive storm.

The center group of photographs shown on the opposite page shows typical examples of the condition of brick structures after the cyclone had passed. The uppermost picture is of a large brick residence of more than ordinary size, located in one of Cincinnati's best residential districts. Altho the force of the cyclone at this point was sufficient to level telegraph poles and dislodge trees, one of which it thrust upon the roof of the brick structure, and altho the front porch was swept from its holding and the window glass thruout the building smashed, yet the brickwork is in perfect condition.

WHAT HAPPENED TO FRAME

In this same district was located the mass of debris and splintered lumber shown in the photograph at the upper left hand corner of the reproduction, which was, before the advent of the storm, a representative "well built" frame house. It is, as can readily be seen, in a state of total destruction.

The picture in the center on the left hand side shows another example of the ability of brick construction to stand up before storms of great fury, when trees and outhouses all about it are being leveled to the ground. This picture shows the brick house in perfect condition, altho one of the large sycamore trees in front was blown over against it by the wind, and a frame garage picked up, carried for several feet, and smashed right at its doors.

Likewise, the lower center picture shows a brick structure from which the front porch has been torn away. The brickwork in this building, as in the others, suffered very little damage. It is, in fact, in almost perfect condition.

LOWER VIEWS SHOW REAL DESTRUCTION

Altho the four pictures of brick structures in the center group and the two at the top showing frame structures that were destroyed by the storm seem to portray great destruction, they were not taken until several days after the storm had occurred and consequently do not reveal conditions exactly as they appeared immediately after the cyclone had passed.

A glimpse of the two lower pictures, reproduced from post cards, gives a better idea of the damage that was wrought by the terrific wind storm. It is not to be doubted that the lumber making up the huge piles of wreckage shown in these two photos was originally used in the construction of many of Cincinnati's "substantial" frame dwellings.

* * *

Lumber Dealers to Handle Brick

In a recent issue of "Brick and Clay Record" mention was made of the action being taken by retail lumber dealers and building supply interests to handle face and building brick. As a result of much discussion by dealers located in Western Pennsylvania, a number of concerns have come to look upon the measure favorably.

CONSTRUCTION *and* OPERATION *of a* THIRTY-SIX FOOT ROUND FACE BRICK KILN

Experts Said It Could Not Be Done and Gave Their Reasons, But the Kiln Was Built and is a Success

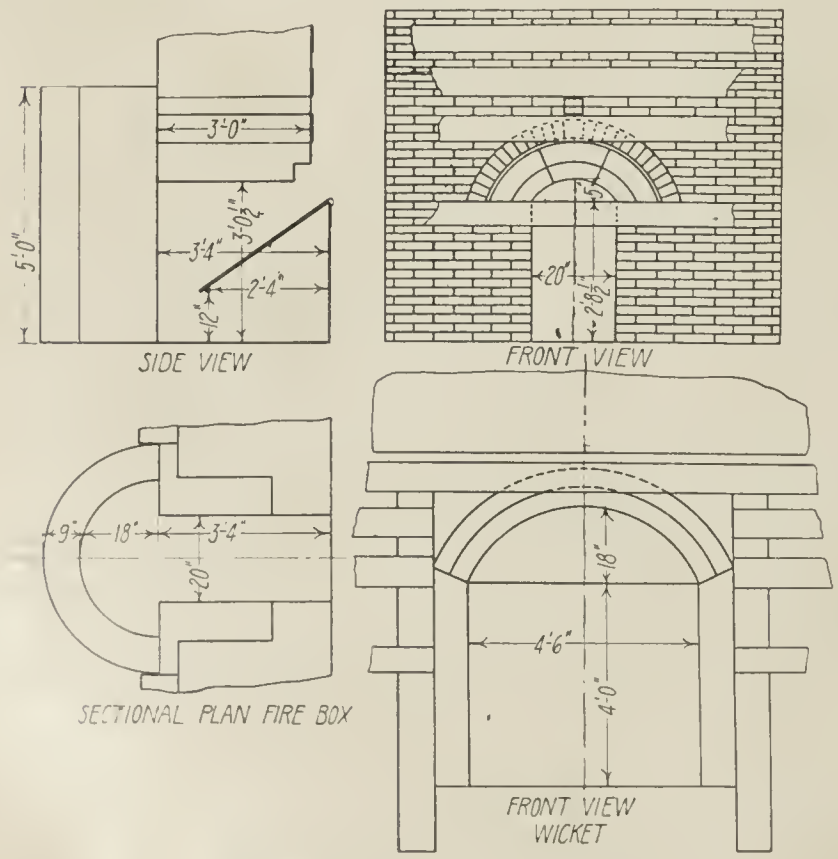
By T. N. McVay

Superintendent, Streator, (Ill.) Brick Company

Read Before the Annual Meeting of the Illinois Clay Manufacturers Association, Held at Champaign, Ill., January 15th, 16th and 17th, 1917.

AN EXTENSIVE INVESTIGATION, conducted by the Streator (Ill.) Brick Company, has proved that only at very widely separated points does the face brick manufacturer discover, in his quest for new and unusual equipment, a thirty-six foot kiln used for burning the product in which he is interested. In its attempt to uncover data which might prove helpful in developing this type of face brick kiln, the Streator company was able to uncover but one concern employing a kiln of that size for burning its face brick.

Correspondence had with a number of face brick manufacturers has brought to light many interesting and diversified opinions regarding the proper size of kiln to use for burning that product. One Pennsylvania manufacturer was sponsor for the statement that he was at present using some twenty-eight foot kilns, but were he to reconstruct them or build additions to his battery, none would exceed twenty-two feet in diameter. The general opinion, however, reflected in the replies received was that a kiln as large as thirty-six feet would operate successfully, if given a chance, altho experts advised against an attempt.



Details of Fire Box and Wicket

ADVANTAGES OF LARGE KILNS

We saw, in the construction of the larger type of kiln possibilities for saving yard space, and, consequently, keeping the kilns closer together and concentrating the waste heat close to the dryer. Also, that we could replace the smaller twenty-eight foot kilns with larger units and the plant would occupy the same amount of space, while the number of kilns would be reduced, to get the same proportionate output.

We have also discovered that an appreciable saving in fuel is made possible by the construction of larger sizes of kilns. From our own previous experience, we have found that in burning those kilns which we rebuilt with a capacity of 65,000 brick, the coal consumption was considerably less than in those reconstructed with a capacity of 60,000 brick.

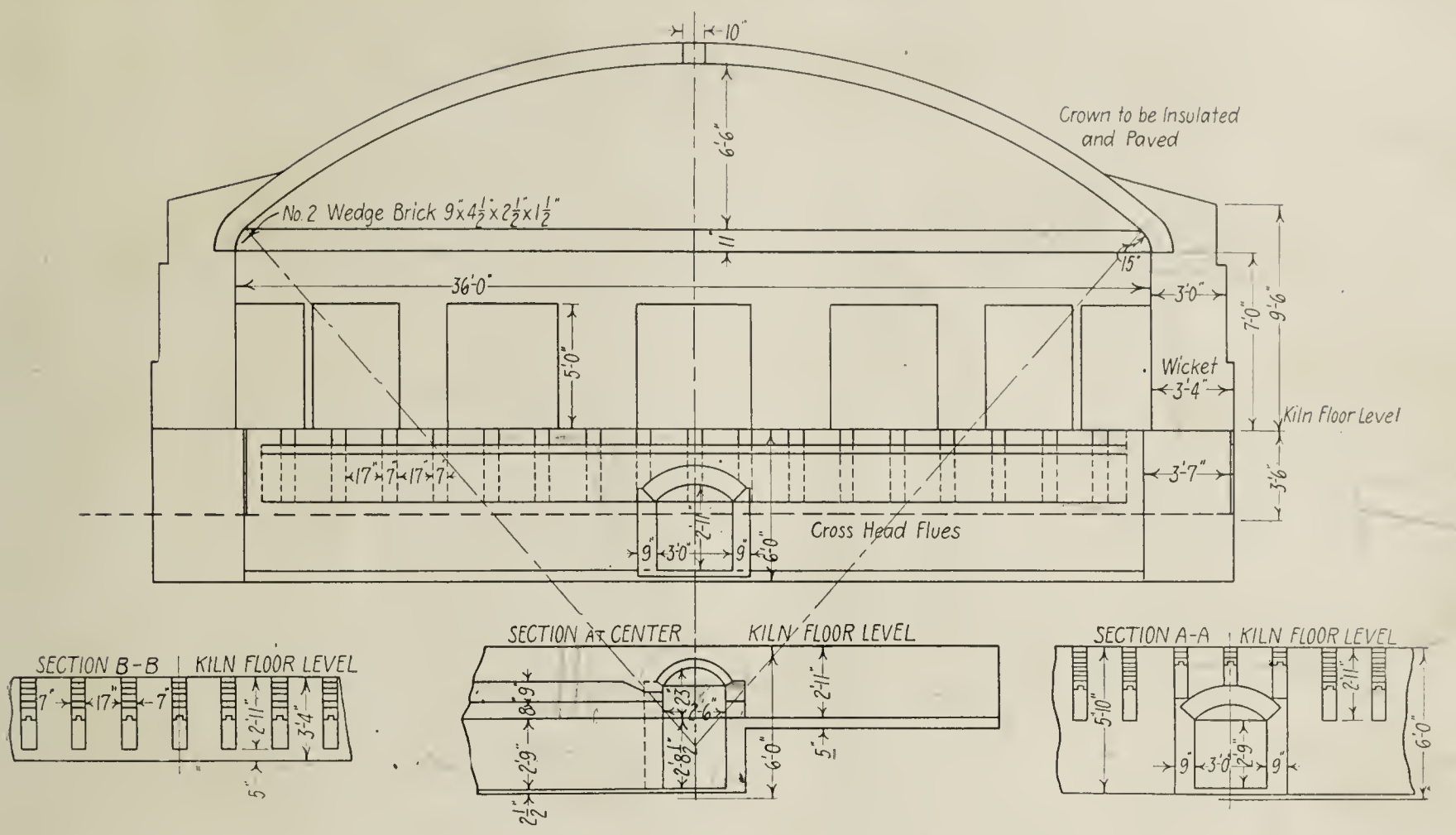
SUCCESSFUL THIRTY-SIX-FOOT KILN PERFECTED

Appreciating all these points in favor of a larger size kiln than is generally used, we have, finally, thru persistent experimentation, perfected a thirty-six foot kiln very much similar to the general type of down-draft kilns used in the Middle West. In its construction the best materials available were used and the utmost care taken.

The floor of this kiln is slotted with feather flues spaced two feet apart. This slotted arrangement makes cleaning an easy process. As may be seen in the accompanying drawings, the cross-head flue is built thru the center of the kiln from door to door, and is 2′ 6″ across and 4′ 6″ deep. The feather flues open into the cross-head below the floor level, consequently causing the gases, before they have passed out of the kiln, to heat up the botton courses of brick.

The main draft flue is at right angles to the cross-head and is three feet wide and 3′ 6″ high. Both the cross-head and main draft flues are arched over with round arches, designed to appreciably reduce the friction of the gases. The whole floor is built of hard burned brick, dipped and hammered into place.

A provision against premature depreciation of this kiln has been made in the form of an expansion ring around the whole floor to keep it from pushing out against the



Cross Section of Thirty-Six-Foot, Round, Down Draft, Face Brick Kiln

foundation. However, I doubt very much if the floor would ever be able to disturb the outside walls, for the foundation proper is built of brick laid in cement mortar and is 3′ 6″ high and 3′ 7″ wide.

The interior of the kiln is entirely faced with fire brick, which were dipped in fire clay and hammered into place. The bag walls are circular and are constructed of fire clay blocks five to a half circle, and have an inside diameter of three feet. This type of bag wall is giving very good satisfaction, and while the kiln has gone thru but twelve burns altogether, the bag walls look as solid now as the day they were built.

CONSTRUCTION OF WALLS AND CROWNS

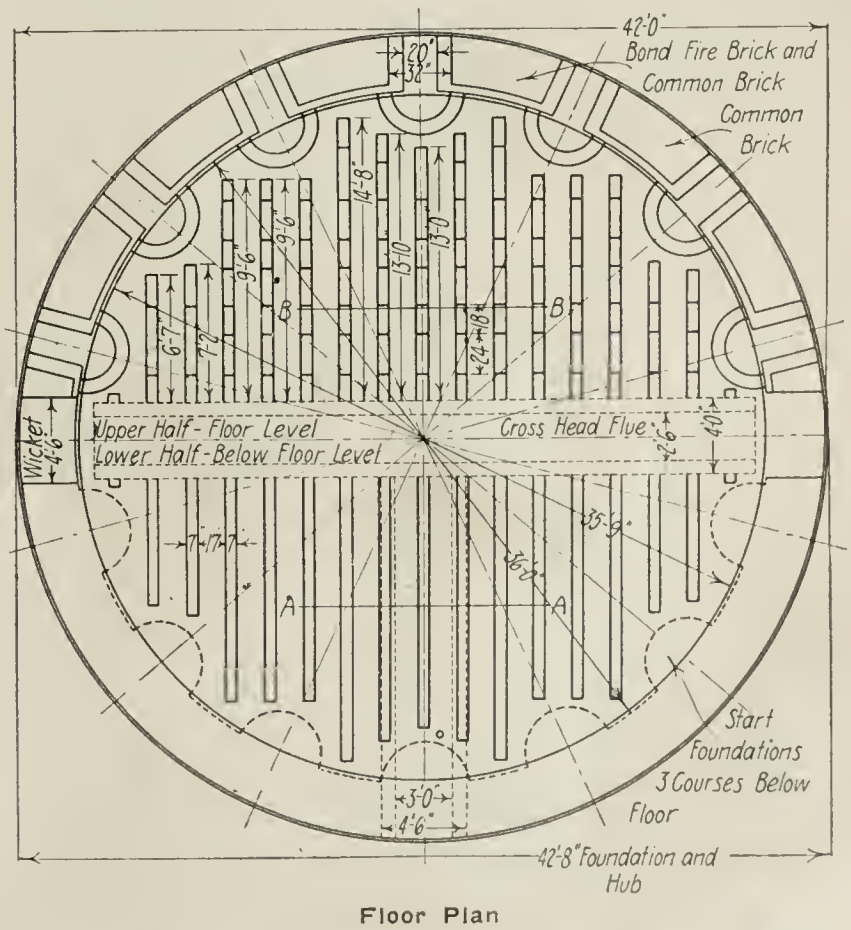
The side walls of the kiln are seven feet high to the spring of the crown. The crown is of the two radius arc type, that is to say, the crown does not rest on the skew back but on seven courses of No. 2 wedges, which give a short arc of fifteen inches, upon which the crown of the main arc rests. The total spring of the crown is 7′ 5″, eleven inches of the rise being taken up by the short arc of the wedge brick. This really makes the side walls eight feet high, since the wedge brick cause the inside diameter to be diminished by only six inches.

The most unusual feature of this kiln is the novel construction of the crown. Clay products manufacturers have long continued to construct the hobs of their kilns three or more feet in diameter, to prevent radiation, and yet, at that point of the kiln which most needs insulation against loss of heat thru this source—the crown—they have constructed a nine or thirteen-inch covering thru which the heat finds easy passage.

MINIMIZING RADIATION THRU KILN CROWN

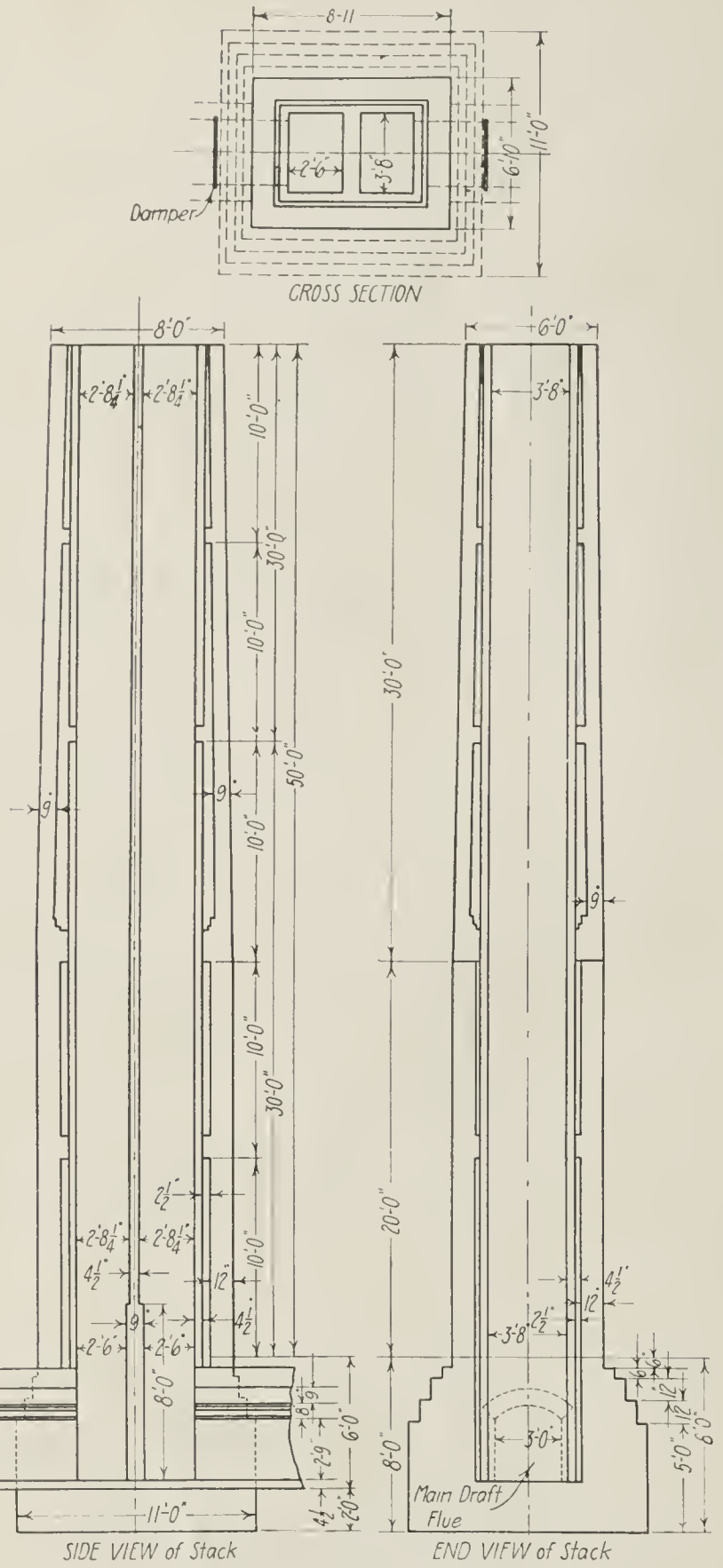
In order to minimize the loss suffered thru this source we have built the crown of our thirty-six foot face brick kiln entirely of fire brick set on end, upon which we have then placed a two-inch insulating layer of kieselguhr, and have finally platted the crown with a course of floor tile. An enormous amount of heat has been saved thru this method of insulation. When the kiln is under full fire, the crown is much cooler than those upon the kilns which are platted only with common brick. In fact, it is possible to hold your hand on the crown when the kiln shows an inside temperature of 1,900 degrees (Fahr.).

The side walls of the kiln are three feet in thickness and are banded with four seven-inch bands and one thirty-inch band. The small bands catch practically every course of brick above the fire-boxes, since the outside walls are laid in rowlocks. The band which holds the crown is thirty inches wide and rests on a ledge placed below the spring of the crown, and therefore, takes up all the horizontal thrust.



Floor Plan

The expansion and contraction during the burning process, which have been found to cause a total movement



Stack for Thirty-Six-Foot Kiln

of two inches, are taken care of by six large railroad springs which fit into lugs.

SLANTING GRATE FIRE-BOXES USED

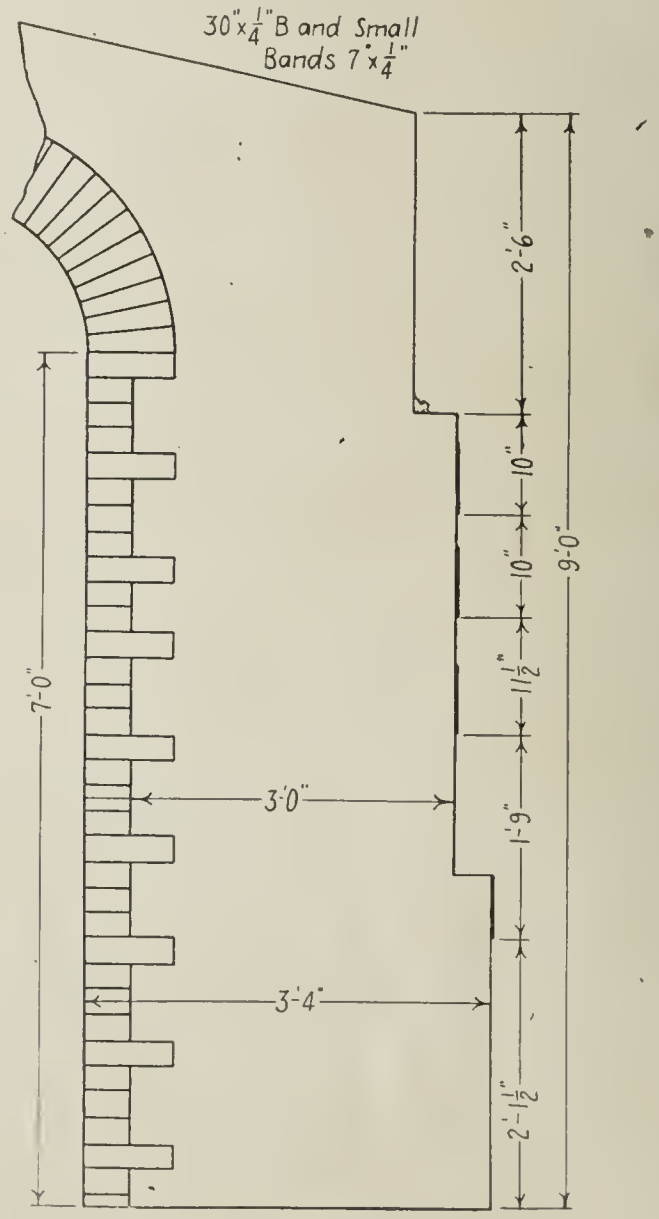
Fourteen fire-boxes of the slanting grate type, twenty inches in width, are contained in the kiln. The grates, which are made of scrap iron, hook on the lower band. Each fire-box is built as a unit by itself and is not tied into the kiln wall. The arch is built of fire clay blocks and sections. On the old kilns, which have passed thru a process of evolution into the thirty-six foot kiln being described, the fire-boxes were built outside the kiln walls, and caused an enormous waste of coal. By building them in the new kiln into the kiln wall, a saving of 250 pounds of coal to a thousand brick over the old type has been realized.

The stack, which is fifty feet high and which is shown in an accompanying drawing, is built with the inside and outside walls separated, to allow for the difference in expansion of the two sections. It is also partitioned in the middle, permitting two kilns to be connected to it, both of which are independent of each other.

TWO BIG SAVINGS OF THIRTY-SIX-FOOT KILN

In firing the smaller twenty-eight foot kilns, we have found that an average of 1,100 pounds of coal to a thousand brick are required. The thirty-six foot kiln, however which has a capacity of 103,000 standard brick, has a coal consumption of 850 pounds per thousand brick, consequently saving 250 pounds per thousand over the old style. Together with this saving in fuel, the burning time has been cut down twenty hours, the burn in the thirty-six foot kiln requiring about 120 hours. We expect by more careful draft control, to reduce the coal consumption below 850 pounds to a thousand brick, and also still further cut the time of the burn. Another definite advantage in burning face brick in the larger kiln is that it has a higher draft at the start, and therefore, allows watersmoking to proceed very rapidly. In fact, after thirty-six hours, it is necessary to cut the draft.

The general burning process which we have found to be most advisable in the operation of this kiln is to raise the heat very rapidly to 1,800 degrees, which takes about forty hours. The heat is then held at about that tem-



Section of Wall Between the Bags

perature until the kiln is red thru to the bottom and is then gradually raised to 1,950 or 1,975 degrees, depending upon the kind and color of the ware to be burned.

SOME MINOR DISADVANTAGES

One disadvantage that has to be encountered in the

operation of so large a kiln is that it requires a day longer to cool during a few months in the summer. Another objection to its use is that the setters have to toss the brick farther than is necessary in the smaller kilns. The objection voiced in many of the replies received by us from other face brick manufacturers, that difficulty would be encountered in getting uniform burns over the entire floor, has never presented itself to us. By choking the feather flues where necessary and setting the brick closer to the bag walls, we have obviated trouble which might otherwise arise from this source.

In conclusion, I will say that on the whole we are very much pleased with this kiln, and are going to erect another of the same type some time during the spring. While it is true that a few minor changes will be made, such as the installation of a better fire-box and the building of the draft flue slightly deeper, the kiln will be in all respects the same as that which I have described.

MONEY *for* BUILDING *is* PLENTIFUL *in* N. Y.

GOLD, and plenty of it, is steadily flowing into the New York banks. The arrival of $40,000,000 at New York and Philadelphia the week before last brought the total imports for March alone up to $96,700,000 for the east coast, as against $9,800,000 for all ports in the United States in March, 1916. Our gold imports of $259,400,000 from Canada, in the present calendar year to date, compare with $30,800,000 from all countries in the corresponding period last year. More than $225,000,000 going into the banks of New York since the first of the year means a vast amount available for real estate and building operations, and when the 1917 building season begins in earnest, as it is expected to within a few weeks, it will find money plentiful even if commodity prices are sky high all along the line.

Architects and builders report an increasing number of projects under way and most of them are directly attributable to the fact that money is plentiful. For the first quarter of this year, metropolitan building operations amounted to $43,080,000, as against $47,900,000 for the first quarter of 1916, and instead of anybody bemoaning the fact that it is a decrease over the previous year, the figures are really inspiring enthusiasm since, it is pointed out, such a showing in the face of all kinds of obstacles like war, threatened strikes, scarcity and high cost of labor and materials indicates more than anything else the strenuous efforts of General Prosperity to rule, even tho Mars, the war god, has loosed his dogs and is sitting on his throne to enjoy the strife that seems imminent.

Crowded Manhattan, clamoring for more room, and gold in abundance for stable investments like New York City real estate are factors that make for a situation unique in itself when it is considered that the United States is face to face with what is perhaps the greatest crisis in its history. One would naturally expect that with the seriousness of the international situation operations would be greatly curtailed, if not abandoned, but such is not the case at this writing, altho there is no telling what a day may bring forth. In some quarters it is said that it will be nothing short of miraculous if the real estate and building market fails to escape a severe set-back following a real taste of war.

SUBMARINE RUMORS HAVE BAD EFFECT

Be that as it may, the fact remains that for the quarter ending March 31st, the building business in Manhattan and vicinity, despite all the obstacles, can truthfully be described as having been good, and if the outlook is dark, it is certainly having no immediate effect on the building materials market. Somebody set afloat a rumor the other day that two German submarines were prowling around the waters off Montauk Point, Long Island. Following this Rear Admiral Usher, commandant of the New York Navy Yard, issued orders that if any person sighted mysterious submarines off the coast in the vicinity of New York they were to at once get in communication with him. This sort of thing has knocked the bottom out of the seashore real estate activities. Of course, nobody is afraid of German submarines, but nevertheless, business is going to be better inland than along shore. This is one phase of the peculiar situation, and it would seem ground for the opinion held in some quarters that the 1917 season will not open as briskly as it might otherwise.

In spite of this, there is no indication of a slump in prices of building materials. On the contrary, prices are still going up, and there is no indication that the price of any building material will be prevented from advancing further, altho the opening of the Hudson River to navigation may prevent additional increases for common brick.

Portland cement has found a new high level at a quotation of $2.15 a barrel alongside the dock. But this is not the peak. From reliable sources it was learned that dealers may be paying $2.60 a barrel for this all-important commodity before the year ends if present pressure continues. A further advance above $2.15 may be looked for at an early date.

RISING COSTS INDICATE CONTINUED ACTIVITY

Indications of no let-up in the building business are plentiful and a careful search into commodity markets reveals that a heavy demand obtains for many of the basic building materials. It is argued that if there was any likelihood of timidity on the part of builders, investors, or operators, prices of building materials would at least be showing a tendency to remain stationary, if they didn't actually recede. But instead of recession, advancement is the watchword and, for that matter, in most cases the necessity. Nobody is asking for an investigation of the high cost of building as was the case with the high cost of living. There is a reason. In nearly all, if not all, cases the increase has been necessary, altho there was some talk, with regard to brick, for instance, that perhaps there would be some speculation. There is nothing to this suggestion so far as can be learned.

It is a fact that dealers, in making quotations for deliveries of brick in May, June, July and August, have been doing so anticipating lower prices. However, whether the present price of $10 can be cut much, if at all, is largely problematical, for the manufacturers of the Hudson and Raritan districts are facing conditions unparalleled in the history of the brick industry in this part of the country. Under ordinary conditions, and in times when the world is following peaceful pursuits, coal dealers are actually hungry for the brick manufacturers' business at this season of the year. Normal prices for soft coal range from $2.90 to $3.50. At present, however, coal quotations are from $5 to $8 a ton and deliveries most uncertain. To add to a complicated situation, towing companies have just served notice on brick manufacturers of increases in rates between Hudson River points and Manhattan. Labor is scarce.

PROSPECTIVE BUILDERS URGED TO ACT

Builders who have been inclined to await possible revision downward of the prices of various building materials have been advised to cover themselves and proceed with

construction work immediately, as there is not a single commodity in the building material department, outside of sand, that is not either stiffening in price or advancing to higher levels. At the same time, there are some things to encourage investors to proceed with contemplated construction; higher rents are obtainable and space is in demand; a better grade of material is being produced because manufacturers find it profitable to concentrate their available labor upon their highest grade lines, which means less depreciation in buildings, and finally, because contractors are inclined to shade their profits to keep their organizations together. The result is, therefore, as one well known authority declares, that while the cost of materials has advanced, the actual cost of construction is being kept proportionally much lower, with actually greater opportunity to make better recovery on building investments than when prices of building materials were low with little or no demand.

HOLLOW TILE TAKES UPWARD JUMP

Hollow fireproofing tile is now quoted per 1,000 instead of by single blocks f. o. b. Perth Amboy, N. J. The following prices represent a six per cent. advance and a further advance is expected: four-inch block, $87.50; six-inch block, $122.50; eight-inch block, $148.75; ten-inch block, $175, and twelve-inch block, $218.75. Interior tile is quoted at: three-inch, $66; four-inch, $74.25; six-inch, $99, and eight-inch, $132.

New buildings and alterations in Greater New York, for the quarter ending March 31st, have called for an expenditure of $36,380,000. The total for the first quarter of 1916 was $40,900,000. The loss this year is in the Bronx, Queens and Brooklyn, strong gains having been made in both Manhattan and Richmond. For 103 new structures in Manhattan, the estimated outlay is $13,500,000, as compared with $11,500,000 for ninety-two new structures in the first quarter of 1916.

Cincinnatians Hold Lively Election

The annual election of the Cincinnati Builders' and Traders' Exchange, held on March 1, was undoubtedly one of the closest ever held by that organization, only ten votes separating the heads of the two tickets. E. F. Grand of the Pursell-Grand Company, was responsible for much of the "pep" in the contest, consenting only two weeks before the election to accept the leadership of the "hoodoo" blue ticket, whose head has never been elected. It may be gathered, from the close result indicated, and from the fact that two of his ticket, H. B. Yergason, for secretary, and David De Vore, for treasurer, were elected, that he put up a splendid fight. The other officers elected were Walter McGarvey, president; A. E. Otte, Jr., vice president, and William Miller, Jr., Frank E. Kinney and C. Taylor Handman, directors. A genuine Mexican burro, a real live goat, a German band and other features were introduced at the election by the various candidates.

25,000,000 Brick in World's Biggest Stack

Preparatory to constructing the largest smoke stack in the world at its smelter, the Anaconda (Mont.) Copper Mining Company is making improvements at its brick manufacturing plant located at that point which will increase the daily capacity to 50,000 brick. The new stack in which these brick are to be used will be 525 feet in height and will have an inside diameter of sixty feet at the base. A series of treaters which will take out and recover all of the copper values and arsenic in the smoke and catch all of the suspended dust particles, is to be built in connection with the stack.

In the construction of the stack alone 10,000,000 brick will be used, while the treaters will require an additional 15,000,000. There is reported to be a stack in Japan a trifle more than 600 feet high and in Tacoma, Wash., one is in the course of construction that will be a foot higher than the Anaconda stack, but neither of these have a diameter like the last mentioned.

Barkwill-Farr Holds "Tilebak" Contest

Another method of reaching the public, the ultimate buyer of building materials, and one destined to achieve remarkable success, has just been employed by the Barkwill-Farr Company of Cleveland, Ohio. It is a contest conducted in the daily newspapers of that city, which, according to Robert C. Mitchell, sales manager of the company and one of the originators of the plan, will have cost, when finished, about $1,000, including the prizes, which amounted to $285, $100 of which constitutes the first prize.

The object is to introduce the company's new product, "Tilebak," to the general public and the prizes were offered for the best essays on why that material should be used in residence construction. Hundreds of answers have been received from the announcements which have been running for more than six weeks, in the form of paid advertisements in the daily newspapers. Every one was entitled to enter into the contest, excepting employes of the Barkwill-Farr Company. Judges who will award the prizes are:

Franz C. Warner, architect; Stanley L. McMichael, secretary, Cleveland Real Estate Board; E. A. Roberts, secretary, the Cleveland Builders Exchange; John W. Thompson, contractor, and Louis Schwartzenberg, engineer, of Christian-Schwartzenberg-Gaede Company. The best arguments advanced in favor of using the company's new product will be the chief consideration in awarding the prizes, neatness or other points not being of prime importance. The winners will be announced in a week or so thru the same medium that the contest was carried on—the newspapers.

Spokane (Wash.) Discusses Its "War Baby"

At a recent luncheon of the chamber of commerce, Spokane, Wash., the program was turned over to a discussion of that city's newest "war baby"—the extensive magnesite industry which has been developed in Stevens County in the past few years thru the efforts of Professor F. M. Handy, of the Washington State College, who bears the title of "foster father" of the newly adopted infant industry. Professor Handy was the chief speaker at the luncheon. At this meeting, the American Fire Brick Company, of Spokane, had on display in the assembly room, magnesite brick which sell at one dollar a piece in lots up to one thousand.

The presence of magnesite deposits in Stevens County was practically unknown outside the United States Geological reports until the European war broke out, cutting off the imported supply. As a result of an investigation that followed, eight magnesite beds in Stevens County are now being worked, fifty teams being employed to haul the material to the railroads. Thru a partnership formed with J. J. Norton, Professor Handy is now operating six of the eight deposits.

Something Good in Store for You
Read Page 736

The GENERAL MANAGER *learns about* SALES REPORTS

Finds That "Voting" a "Straight Ticket" to Avoid Work is a Dangerous Practice and Actually Leads to Disaster

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company, Uniontown, Pa.

THE GENERAL MANAGER was reading with interest a report on the use of steam for heating purposes. It seemed that the company was using live steam in the dryers at night, whereas the same steam could first be used to run an engine, and still have the same heating power, so that the work of the engine would cost practically nothing, and would be in effect a by-product of the heating system.

He laid aside the report as Mr. Barnes, according to appointment, came in to discuss methods of handling sales reports.

GROSS SALES DECEPTIVE

"Suppose to begin with," said Barnes, "that the sales for a plant are $10,000 for one month, $12,000 for the next month, and $15,000 for the third month. The net sales may still be the largest for the month when the gross sales were the least, on account of deduction to be made where the brick are sold with freight allowed to destination. It sometimes happens that the freight is more than the base price received for the brick."

"Then it is only the net amount of the sales, less freight, which we should consider, and not the gross amount of the invoices charged to the customer," said the G. M.

"Exactly. You charge the customer with the gross amount of the invoice, including the freight, but you should credit your sales account only with the net amount, and credit the freight for the month to some other account calling it Freight Allowance, or some such name."



He (the former G. M.) Was a Man Who Preferred to "Vote" a "Straight Ticket" and Avoid Details as Much as Possible

"Then if the gross sales are deceptive, are the net sales to be relied upon?"

"Yes, so far as they go. But still, an increase in the net sales for the month does not necessarily mean an increase in the profit. The increase may be due to a still larger increase in the net sales of material paying a smaller margin of profit.

"Last evening I went over the sales of one of the plants for the months of November and December very carefully. The reports you have on file at present covering shipments from this plant are as follows:

November, 1916

Nine-inch equivalent sold	596,000
Net sales	$18,048.95
Average price per M.	30.28

December, 1916

Nine-inch equivalent sold	570,000
Net sales	$17,566.90
Average price per M.	30.80

WHAT A DISSECTION OF SALES REVEALS

"According to these records the plant does not make a very good showing. There is a decrease in the amount shipped and in the net sales, with only a slight increase in the average selling price per thousand. But upon dissecting the sales for the two months we get these interesting results: (Here Barnes submitted the statement shown on the following page.)

"I have always thought that such reports should be made covering the sales from each plant for each month. A paving brick plant should divide its product into firsts

and seconds, together with a separate classification for by-products such as building brick set in the bottoms of the kilns, while a face brick plant should make up its report covering grades which sell at different prices."

The G. M. looked at the report long and thoughtfully.

"According to this, there has been an increase of anywhere from eight to nearly fourteen per cent. in the selling prices of the different brands, but an increase of less than two per cent. in the average selling price for all brands taken together. Has the accounting department any figures as to the relative costs of the different brands?"

"So far as we are able to tell, it depends upon the plant at which the brick are made. One plant may be equipped to produce the Bonus brand at less than any other brand, while another plant may be able to produce the Primus brand at but little greater cost than the other brands which sell for considerably less money."

"How do you account for the ups and downs of the different brands and classes with regard to the quantity sold each month?"

"That is a question for the sales department, but my own private opinion has been that in order to make a showing they frequently go after lines of which they can sell the largest quantity at the least effort. I have felt that one should select the lines which can be most efficiently produced at each of the plants, aim to sell this amount as far as possible and then fill in with less profitable lines."

"But don't such reports as you have gotten out take a lot of work?"

"Not so very much. It involves the distribution of each and every sale among the different classes produced by that particular plant, together with a deduction for freight allowed where this is included in the selling price. But then, what other method is there for telling what changes there are in the prices of the different brands? Of course, such reports as we have made up in the past are far easier to prepare, but they conceal rather than reveal the most important facts."

"Then why have the reports always been made up in this fashion, showing only the averages for each plant each month?"

PREFERRED TO "VOTE" A "STRAIGHT TICKET"

"Because the former general manager preferred them in this brief form. To have had detailed reports to go thru would be like selecting the best man from among a lot of candidates for a large list of offices. He was a man



According to These Records, the Plant Does Not Make a Very Good Showing

who preferred to vote a straight ticket and avoid details as much as possible. Perhaps if he had given more attention to this phase of the work he would have avoided the rocks which wrecked his management."

"Then you feel that to navigate this boat one should study tables like a nautical almanac?"

"To keep one's course and to avoid financial shoals and reefs, yes."

"Thanks. I'll take this statement home and study it more fully. In the meantime I will be glad if you can work up reports of this kind for each of the plants for the past two months, and see what changes for better or for worse are taking place in the various classes of brick and shapes. Then we can encourage the sales department to go after the classes of brick which appear more profitable."

(Next Issue: The General Manager has a Conference With the Sales Manager)

		NOVEMBER			DECEMBER		
	Brand	9″ Eq.	Amount	per M.	9″ Eq.	Amount	per M.
Standard Nine-inch Series	Primus	225,000	$ 7,026.75	$31.23	50,000	$ 1,753.50	$35.07
Standard Nine-inch Series	Bonus	175,000	4,928.00	28.16	350,000	10,948.00	31.28
Standard Nine-inch Series	Quarto	86,000	1,527.35	17.76	100,000	1,973.00	19.73
Class A Shapes		25,000	877.75	35.11	50,000	1,962.50	39.25
Class B Shapes		35,000	1,423.10	40.66	15,000	661.65	44.11
Class C Shapes		50,000	2,266.00	45.32	5,000	258.25	51.65
Total		596,000	$18,048.95		570,000	$17,556.90	
Average for the Month				$30.28			$30.80

STRAWS *that* SHOW *the* WIND

Brief Paragraphs from Many Points, Indicating the Market's Trend in the Light of Building Activity

WITH THE RESUMPTION of navigation on the Hudson River, the New York brick market has taken a new lease on life, altho from present indications it is questionable whether there will be any reduction in the wholesale price of brick from the figure of $10, established a few weeks ago. The present level is stiff and firm and dealers have been advised to use that figure as the basis on which to make all estimates, at least until August 1. April began with a trifle over 5,000,000 brick in the New York market and dealers' stocks considerably depleted.

About 30,000,000 common brick from the Hudson River district, which normally are not shipped beyond the limits of the city of New York, have been sent to all parts of New England by rail this winter at almost unheard of prices. This left New York with only 207,000,000 Hudson River common brick for consumption between now and the reopening of the brick making season as against 330,000,000 last year at this time. Due to the fact that labor is hard to obtain, it is not probable that new brick will be available in this market before the middle of June, if then. The renewal of agitation to fix a flat rate for brick to cover summer and winter requirements has little chance of being adopted this year.

* * *

The labor situation in New Jersey is not promising. In the Hackensack district, all the national guardsmen have been called to the colors, and the same thing is true in Trenton. While not many of the guardsmen were employed in the brickyards, the indirect influence is considerable because the places made vacant will soon have to be filled and, in the shift that is bound to take place, the yards are destined to lose. Since immigration has stopped, the only way which remains to relieve the situation is by bringing labor from the South. How extensively that will be done this year cannot be determined until the season really opens. Munitions factories in northern New Jersey constitute another temptation, and in the event of the United States going to war, these factories will continue to be a magnet attracting all available labor. It is not difficult to see that the labor outlook in the Garden State is not the best and brickmakers may well demand the high prices which have recently prevailed to help them pay the cost of production.

* * *

The extent to which building activity is promised for the coming spring season in Cincinnati is indicated by the fact that in the metropolitan district, including the Kentucky cities across the Ohio River, the month of March showed permits for work valued at $1,300,000, as compared with $1,227,365 for the same month of last year, in spite of a decrease in the number of permits. Numerous large jobs are being planned, especially in the manufacturing sections, and the amount of work the architects are figuring on is very heavy.

The building department of Columbus, Ohio, in its report for the first three months of the year, shows a falling off in the number and value of building permits issued but this is accounted for on the grounds of the severe winter which stopped outside work. Last year, during the months of February and March, weather conditions were quite favorable for building. The report shows that 293 permits were issued during March, 1917, having a valuation of $571,245, as compared with 340 permits and a valuation of $868,936 in March, 1916. For the first three months of the year the department issued 469 permits having a valuation of $931,910, as compared with 632 permits and a valuation of $1,406,575 in the corresponding period in 1916.

The spring building season in Canton, Ohio, has opened auspiciously. During the past week the city building department issued fifty-five permits for structures, estimated to cost $135,000. Of that number thirty-seven were for dwellings, the average cost of which amounted to $2,100. Several apartment houses were included in the permits.

* * *

The season has opened well with the Kentucky brick and clay products trade. The beginning of April found most of the Louisville manufacturers with all the business they could handle, some of them reporting that they were swamped with orders, and were looking forward with a considerable measure of dread to the rush that would come when the demand began to make itself felt. The shortage of cars has been and continues to be one of the chief difficulties with the shipping trade. There continues to be a lot of small building, with orders for brick and tile in limited quantities, altho on the whole the volume is good. Common brick are up to $9.50 delivered in Louisville and the purchasers, accustomed to advances all around, appear to be accepting that on brick without much objection.

* * *

Just prior to and immediately following the official signing of the declaration that a state of war existing between the United States and Germany, there was felt in Kansas City, Mo., and surrounding territory a general depression in every line of business. However, this depression has not extended to the brick business to any great degree. In fact, plans for spring building and construction are progressing as if nothing had happened to mar the prospects. The war talk has retarded the brick business only in the rural communities, according to the managers of the selling companies located at that point, who look for a building boom immediately after the newness of the present situation wears off. The plants in the Kansas City section are reported to be working to capacity and many are said to be running overtime. The selling offices located there are daily increasing the bookings for the total yearly output and the statement is made that several of the plants are already oversold for the coming year.

* * *

The past two weeks have again been devoid of big projects in San Francisco, Cal., but business activity has been such that there can be no cause for complaint. There is an especially good activity in the way of repairs and additions to existing buildings, and all of the brick and terra cotta plants in this section report enough orders to insure steady work thruout the summer. A number of state and city buildings are projected, the latter being especially promising.



A General View of a Typical Fitting Department, Where the Ware, After Being Brought in From the Kilns, is Placed Upon Platforms That Have Been Marked Off to Designate the Necessary Lines

SATISFACTION MADE SURE

Details of a Terra Cotta Fitting Department Where Mistakes Are Remedied That Might Cause Trouble at the Job

By Rolf W. Bauhahn

(Formerly with the Atlantic Terra Cotta Company, Perth Amboy, N. J., Now Instructor at Princeton University)

ONE OF THE MOST important stages in the process of manufacturing architectural terra cotta is the inspection of the finished product. During the early years of the development of terra cotta in this country, it was not deemed necessary to examine the material carefully before shipment. Manufacturers presumed that once the drawings and patterns were made right, and the clay turned from the molds had been dried and burned properly, there was nothing left to do but ship the product and set it in the building. They were justified in this attitude in those early days, perhaps, because of the nature of the product made—there was at that time no ceramic chemistry to contend with and practically all of the highly technical features which play such important parts in the manufacture of this burned clay product today were entirely absent.

As the use of terra cotta increased and the ingenuity of manufacturers developed beautiful variations in the surface of the material, the necessity for inspection after burning became a prerequisite to satisfactory service to customers. And, as the size and the importance of the buildings in which the material was to be used made absolute correctness an urgent necessity, the terra cotta pieces were assembled and inspected before shipment, since it was naturally easier to remedy a mistake at the plant than at the building. This feature of the process of manufacture created what is known today as the fitting department.

A visit to an architectural terra cotta plant leaves a deep impression of the complex character of the production of this material. It seems simple to dig clay from the ground, burn it in whatever form or shape may be required for a building, and then ship it to its destination. But, after looking at the material going into the kilns and coming out, and, after looking thru some of the peep holes of the kilns under fire and learning that the material stays in the kiln two weeks, during which time a temperature of 2,500 degrees Fahr. is reached, then one begins to realize that a remarkable feat is being performed.

Today when terra cotta is taken from the kilns, it is loaded on small cars and pushed along tracks to a section of the plant apportioned to assembling and inspecting of the material—the fitting department. The shorter the distance from the kilns to this department, the more effective this essential process of the production becomes. The space for this work may or may not be under cover, as the location of the plant makes feasible. Some men claim that the entire distance from the kilns to the freight cars should be covered so that the material is not exposed to the weather at any time before shipment.

LAYING OUT THE FITTING DEPARTMENT

The layout of this section of a terra cotta plant must allow for the continuous movement of the material, and the ideal condition of manufacture is that in which the material may come from the kilns to the fitting depart-

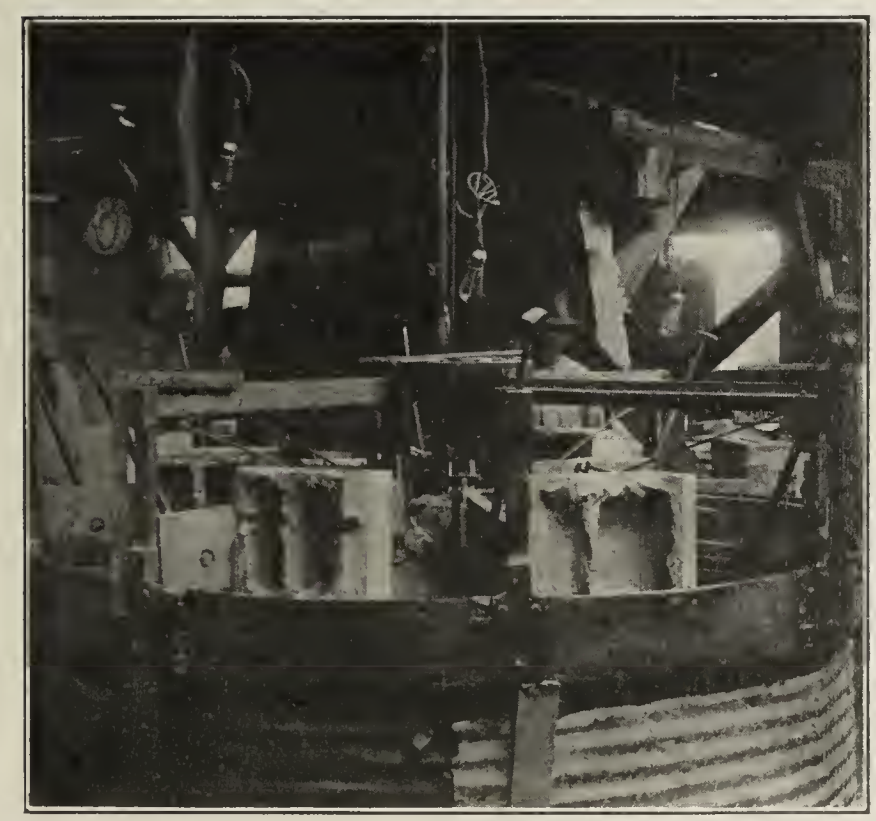
ment, be assembled, fitted and inspected immediately, then moved on to the freight cars and to its destination, with the least possible delay.

But, in a large plant where there are a great many kilns, it seldom happens that all the material necessary for a certain building can be assembled at the same time. Often it requires a whole week for all the pieces of terra cotta to come from the kilns. This demands a space to be set aside for storing the material before fitting. Likewise, when there are a great many stories on a building, all cannot be made and shipped at once. If the first three stories are fitted complete and are not wanted at the building for a month, there must be a space assigned for storing the terra cotta pieces until such time as they are needed. Thus, when the material leaves the kilns, there should be three separate sections for handling the terra cotta; one for keeping the material while waiting to be fitted, one where the material is to be fitted, and another for disposing of the material until it is to be shipped.

If the storing spaces are blocked out into sections where the terra cotta may be piled according to the order numbers and to the stories of the building in which the material is to go, the work of this department will be greatly facilitated. The location of the ground where the laying out and fitting together of the pieces are done, should be between the two storing spaces, and double tracks should be laid thruout this section so that material may move in and out without congestion.

MAKING THE ASSEMBLY

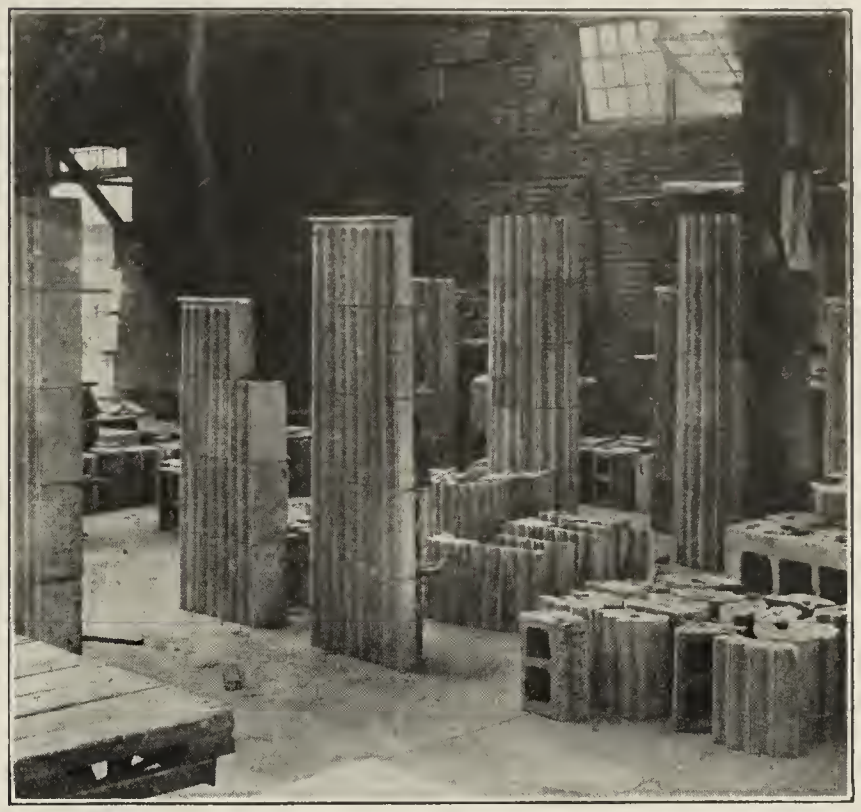
When the material comes from the kilns or the storing space ready to be fitted, it is brought in on cars and placed on a large concrete or wooden platform, where the fitter has drawn lines with chalk or stretched a string to designate the necessary building lines. With the help of laborers, the fitter lays out the terra cotta just as it is to be set in the building. For most architectural features this work is simple, but when domes, towers, columns, capitals and other intricate assemblies are to be made, various ingenious



The Rubbing Bed Where Nearly Every Piece is Ground to the Proper Finish with a Mixture of Sand and Water, Before Leaving for the Job

schemes have been devised for fitting. After the terra cotta is laid out, the foreman must inspect it and sometimes, on special work, members of the management deem it necessary to pass upon the work in order to guarantee satisfaction to the architects, for often there are glaze defects which demand special inspection.

All work which is fitted requires certain treatment before it can be called a finished product. Owing to the shrinking and warping of the clay which takes place during burning, pieces must often be cut, or proper joint allowances made, and sometimes they must be made over. All terra cotta pieces must be provided with proper holes for iron, a feature which necessitates, at times, extra cutting of the material. Making the terra cotta with more clay than is necessary for use in the building, however, is the condition which requires cutting most frequently. Consequently, there is always a space apportioned to cutting the terra cotta and a squad of men with chisels and mallets is continually at work. After the pieces are fitted satisfactorily, they are numbered in proper order so that the men setting the material in the building may be guided in their work.



A Corner in the Fitting Department Where Some Pretty Close Fits Are Made. Here Many Pieces Are Assembled in Exactly the Same Manner as They Are to Be Used in the Finished Building

RUBBING BED GIVES FINAL TREATMENT

Before leaving the department, however, each carload is stopped and the pieces placed on large rotating iron discs fed with sand and water where the joints are ground and rubbed so as to produce a smooth, straight surface, to facilitate setting at the building and to give a more pleasing architectural effect. This operation takes very little time and adds much to the quality of the finished product. The terra cotta is then placed on the cars again and pushed out to the storing yards or to the freight cars for shipment.

It is readily seen that the fitting department is almost an absolute necessity to the architectural terra cotta plant. It is the means of remedying mistakes which would cause much trouble at the building and which can easily and more economically be corrected at the plant. It is the means of promoting a spirit of co-operation between manufacturers and architects who design the work, since it gives the latter the opportunity to see the material before it is set into place at the building. It is undoubtedly a most effective provision for improving the quality of the terra cotta as a building material, perpetuating its use, and augmenting its popularity among architects and contractors.

AMONG *the* POTTERIES

Frank W. Gratton of East Liverpool, Ohio, will oppose Edward F. Menge, also of East Liverpool, the present incumbent, for re-election as president of the National Brotherhood of Operative Potters, according to the primary election returns received from the various trade locals identified with the organization, which have just been canvassed by a committee. The third aspirant to the presidency was Frank Smurthwaite of Wellesville, Ohio.

John T. Wood of East Liverpool, and J. Verne Johnson of Trenton, N. J., were returned winners in the primary fight for secretary-treasurer. For first vice president, Frank W. Hutchins and R. A. McDevitt, both of Trenton, N. J., were the winners, while George Chadwick and Andrew Habig were the successful candidates for second vice president. The race for third vice president was close between five entries, the results showing Anthony O'Toole and Louis Dribe as having secured the largest number of votes. The winners for fourth vice president were Sheldon M. Moore and John Hadgett, while George H. Curtlidge and Thomas B. Dennis won in the race for the fifth vice presidency. T. M. Woods and R. H. Smith will form the opposition for sixth vice president, with John E. Shingler and Samuel D. Burford paired for seventh vice president.

There was no opposition for members of the eastern standing committee, which takes in the Trenton plants, William E. Young, E. J. Whitehead and Joshua Delaney being the candidates. F. J. McCullough, John P. Duffy and Fred Schodde were the three favorites for members of the western standing committee which takes in the plants west of the Allegheny mountains.

Members of the National Brotherhood of Operative Potters are preparing for their annual convention, to be held at Atlantic City next July, by drafting resolutions to be presented to that body. There is no intimation, of course, as to what the men will ask, but additional interest is lent to the movement because this year the Brotherhood officials and the labor committee of the United States Potters' Association will get together in September and formulate the scale while will become operative October 1. So many changes have been made in the old scale, however, that even the most optimistic do not anticipate a general advance.

SHORTAGE OF IMPORTED CLAYS SERIOUS PROBLEM

A very serious situation confronts the domestic pottery manufacturers of the country just at this time in the low supply of imported clays. The supply of English china and ball clays is lower now than ever before known. It is intimated by some manufacturers that unless additional supplies are secured very soon, some plants will be seriously crippled in operations. It is pointed out that an eastern importer of English clay, who had heavy orders for western pottery manufacturers, has been advised that a boat carrying a large cargo of foreign clays was sunk a few weeks ago when only a short distance out from its foreign port. The bulk of this cargo, it is said, was for Ohio pottery manufacturers. It is impossible to predict when additional supplies will be received. Domestic clay miners are also handicapped, being unable to get sufficient workers for the mines and pits, and are also experiencing trouble in getting sufficient cars for loading. Taking everything into consideration, the shortage of clay is becoming quite alarming.

POTTERS PLAN PREVENTION OF FUEL FAMINES

There will never be another fuel famine in the East Liverpool district. If gas cannot be supplied in sufficient quantities to keep the potteries in operation, it will be done away with entirely and some other fuel used in its stead. Coal is the logical substitute, and since there is an abundance of this material within easy shipping distance, undoubtedly it will be used. Plans are now in the making with this end in view. Indubitably, there will be enough gas thru the summer months; there always has been, but that constitutes little or no assurance that there will be enough when the winter comes. There must be a steady contract fuel supply, and the manufacturing potters are going to have it.

SAXON COMPANY ANNOUNCES EXPANSION PLANS

The Saxon China Company of Sebring, Ohio, which has announced average profits of about $48,000 for the last five years, has placed an issue of $225,000 worth of stock on the market, it being known as a seven per cent. cumulative issue. It is said the company plans the erection of additional kilns and that, with increased capacity, will show still greater earnings. This company, which was formed by Fred Sebring, was recently taken over by the French China Company, which is controlled by Oliver H. Sebring. The stock issue is in the hands of Cleveland banking interests for disposition.

PRONOUNCED EARTHENWARE SHORTAGE FELT

While there is no earthenware famine at this time, there can be no denying that there is a pronounced shortage. The importation of hundreds of thousands of dollars' worth of ware, which formerly came into the United States from Germany and Austria, has been stopped, and imports from England and France are decidedly less than they were before the beginning of the war. Some improvement is noted in Danish and Italian imports, and Japan has greatly increased its business here. But combined they have not made up the deficit.

CALIFORNIA POTTERY SHOWS SPEEDY DEVELOPMENT

Subscriptions for the proposed pottery plant at Gonzales, in Monterey County, Cal., have now reached a large enough figure to warrant beginning the construction of the main building, which is to be 90x230 feet. Work on incorporation has also been begun, altho the name for the new company has not as yet been decided upon. The capital stock is placed at $50,000 and more than half of it has already been subscribed for. It is planned to have the plant in operation by June of this year, manufacturing white enameled sanitary ware.

POTTERY NOTES FROM MANY PLANTS

Reconstruction of the burned plant of the Potters' Mining and Milling Company at East Liverpool, Ohio, manufacturers of flint and spar, has started and officials of the company are of the opinion that the plant will be ready for operation within three months. One-half of the plant, which was saved from the flames, is now operating. Delay in securing machinery for the rebuilt part is anticipated, altho the manufacturers have promised hasty delivery.

New York pottery jobbers have been practically "camping" in the Eastern Ohio pottery district of late, and have started to out-bid one another for stocks. Instances are related where a voluntary advance of from ten to fifteen per cent. has been offered for immediate deliveries of any surplus stocks available, but very small amounts are to be had.

At a recent Rotary Club luncheon, Robert Schroth of the Laboratory Supplies Company, Columbus, Ohio, gave a very

interesting description of the manufacture of porcelain. The company makes a line of porcelain laboratory supplies and equipment which, before the war, was secured from Austria and Germany.

The Bluefield (W. Va.) Brick and Tile Company has been incorporated with a capital stock of $25,000, to manufacture earthenware products. The incorporators of the new concern are Charles E. Mustard, W. L. Mustard, C. S. Dieffenderfer, D. E. Douglas and R. B. Parrish, all of Bluefield.

The Florentine Pottery Company, of Chillicothe, Ohio, has increased its capital stock from $5,000 to $150,000. This company has been interested in the manufacturing of art pottery for many years and, it is said, it is now the plan of the concern to make a line of general ware.

The Hampshire Pottery at Keene, N. H., formerly in charge of J. S. Taft, has been acquired by W. R. Morton, former superintendent of the Gruby Faience Company of Boston, Mass., according to recent New England reports.

The German-American Stoneware Works of Keasbey has filed a certificate at Trenton, N. J., changing its name to the General Ceramics Company and increasing its capital from $450,000 to $2,000,000.

Rush conditions are noted at the plant of the Salem (Ohio) China Company and members of the skilled force employed there are working overtime in an endeavor to keep abreast of the heavy demand for ware.

R. T. Hall, secretary-treasurer of the Hall China Company, East Liverpool, accompanied by Mrs. Hall, returned home last week after a delightful trip to Florida.

The Trenton Potteries Company of New Jersey has taken a lease on a large warehouse on Bluxome Street between Fourth and Fifth Streets for the coming five years.

The Florentine Pottery Company of Chillicothe, Ohio, has increased its capital from $55,000 to $150,000.

The C. W. Stine Pottery Company of White Cottage, Ohio, has increased its capital from $40,000 to $100,000.

The Little Brown Jug in a New Role

"The little brown jug" of the song was intended to give comfort to its owner, and apparently succeeded very well. A modern variation of the jug shows it in just as comforting, if not inebriating, a role—that of foot-warmer.

The Red Wing (Minn.) Pottery Company is given credit for having applied the heat-retaining qualities of the jug to this particular use, and the application is said to have been a great success, especially in sections far enough north to suggest the use of a device of this kind for autoing, sleighing, and so forth, during the winter.

The jug is a three-sided affair, with the sides slightly concave, so as to enable the feet to rest upon them without difficulty. It holds about a quart of hot water, and has a stopper which screws into place. There is no vacuum or "thermos" feature connected with the warmer, but it relies for its efficiency upon the fact that pottery holds, instead of radiates, heat and keeps warm for many hours.

A Chicago druggist, who has been displaying the foot-warmer in his window, said that the past season was the first during which the foot-warmer was in use, and that he sold several dozen without any difficulty, having only three left.

The success of "the little brown jug" in its new role seems to suggest that no matter how dry or "bone-dry" the states may grow, the jug makers have plenty of opportunities left for the creation of important markets.

"Brick Red" On New American Color Card

After years of depending upon foreign sources for information regarding colors used in making up fabrics, paints and other commodities, America has at last an organization which authoritatively co-ordinates its colors and issues a color card which gives the range of hues commonly in use, and adds from season to season those which come in. Its latest color is known as "war red," and an interesting feature of this is that it was taken from brick color, which is red bordering upon the yellow. In other words, it is a red of the burned brick with just a tinge of yellow on the surface. Terra cotta was included in the very first list of colors which this company prepared two years ago, and it now adds this new brick color as one of those which will be popular during the late spring and early summer.

Agreement Reached in Cleveland Lockout

The settlement of the building trades lockout in Cleveland, Ohio, which was declared on March 1 because, the employers allege, agreement with contractors had been broken by the labor contingent, was reached last week when a satisfactory agreement was signed by the Building Trades Employers' Association and the Building Trades Council. The former organization represents the big building contractors in Cleveland, while the council represents the union building workers. All that remains now is for the individual unions to ratify the agreement reached between the main factions. Deliveries of materials will be resumed as soon as this is done and the men, about 20,000 of whom either struck or were locked out following the initial controversy, will go back to work.

It was estimated that $20,000,000 worth of building operations was held in suspension thruout the fight, during which time very little material moved into consuming channels. As a climax to the lockout, two leaders of the union faction were arrested on charges of graft. They are said to have claimed power to call or prevent strikes for a monetary consideration.

Misplaced Credit

Under the title "What a Rattler Does to Cement Brick," an item was published in the March 27 issue of "Brick and Clay Record," which described a very interesting test of the relative wearing qualities of cement and vitrified clay paving brick in which it was shown that cement brick of the same size as burned clay paving brick suffered a loss in the rattler of from seventy to one hundred per cent., according to mixture used, while the burned clay product, subjected to identically the same test, lost only slightly more than fifteen per cent. of its original weight. In describing the test, it was stated, thru an error, that it was conducted by the Crawfordsville (Ind.) Brick Company. It has been since discovered, however, that the author of this interesting experiment was not the Crawfordsville Brick Company, but was the Standard Brick Company of Crawfordsville.

Improvements are being made to the plant of the Robinson Brick Works, Charleston, W. Va., that will increase its capacity from 15,000 to 40,000 brick a day. A nine-foot dry pan is being installed and an open air drying system, with a capacity of 200,000 brick, is being constructed. Two rectangular up-draft kilns, each with a capacity of 300,000 brick, will shortly be erected, and a clay storage shed and a stock shed built.

MARKETING *the* PRODUCT

Helpful Articles and Timely Suggestions for the Dealer and the Manufacturer's Sales Force

DELIVERIES AND THE SALESMAN

AN INTERESTING SIDE-LIGHT on what the salesman must do in order to conserve the good will of his customer is given in the plan of a large common brick manufacturer, who charges his sales department with following up the delivery end of the business. The sales manager is thus "on the job" from the time the order is booked until the last thousand is delivered to the contractor.

In this branch of the brick business—and, in fact, in nearly every division of the industry—service is the big feature in landing business, and service usually may be boiled down to mean prompt deliveries, deliveries at the time the material is promised. That is to say, the salesman who gets an order cannot afford to go blithely onward, seeking new business and forgetting about the customer whose name he has secured on the line below, but he must see that that customer is properly served and taken care of. Otherwise, the next time he calls, he may have to face a disappointed and frigid prospect; his sales talk will have lost its force, because the buyer did not receive the sort of service, meaning prompt deliveries, that he had expected and which he had been promised.

It is thus quite evident that the relationship between the selling and the delivery or operating departments is very close, and that is why the head of the common brick company in question saw fit to make the sales department responsible for getting the material in the hands of the customer on time.

Usually there is an eternal row on between those in the selling department, who promise the earth to their customers, and then some, and the members of the operating department, who are expected to make good all those promises, regardless of whether or not they were O. K.'d by that department. Irritation on both sides, allegations regarding "lack of co-operation," and all that sort of thing are almost invariably the results of this program. When the responsibility is shared jointly, however, and when it is the selling department that must follow the deliveries thru, those handling the sales work are going to be more conservative, in the first place, in making promises, and in the second place, are going to come nearer having those promises kept.

One of the things which interferes with the development of the best relations between buyer and seller is that the customer doesn't keep in touch with the man who made the sale. Often, especially in the big organization, the salesman has nothing to do but sell, and while he establishes some excellent personal relationships with customers, these cannot be turned over to the remainder of the house. Thus it happens that the customer is handled by those who are not particularly sympathetic with him, who have no personal interest in the continuance of his business, and who do not, therefore, make the same favorable impression which the salesman has made.

All of these things seem to suggest that the salesman should be more than an order-getter. He should be a purveyor of satisfaction to the buyer, and that means keeping up with the progress of the sale until its final consummation. Certainly such a system is calculated to make it comparatively easy to get repeat business.

* * *

Keep on Telling Them

A brick manufacturer who has a large organization, formed for the purpose of rendering first-class service to his trade, admitted that in order for his organization to make much of a selling argument, it is necessary to "keep on telling them, that is, the customers."

"There are price-cutters in every line," he said, "and we have competition of that kind to face. Yet we manage to get business right along, in spite of cut prices. It isn't easy, and we have to sell on the basis of service and quality rather than price.

"The question of whether we get the business or not is often decided by the size of the order. The cut price may look particularly attractive, if a big deal is involved, but, on the other hand, service is especially valuable in such a case. In the case of a small order, the service element may not be so important, but neither is the difference in price. So we have a chance to get the business, no matter what the conditions.

"However, we have found that the only solution of the ever-present problem of meeting the cut-price artist and beating him at the selling game, is to keep telling our customers about what we have to offer. We cannot afford to let them forget that our name stands for reliability and service—we must keep them "sold" on this feature. In that way the customer is always favorable to the proposition."

This is a variation of the "keeping everlastingly at it" doctrine which the clay products manufacturer and dealer can well afford to bear in mind.

* * *

The Age of Sanitation

Of the multitude of new factors introduced into civilized life during the past fifty years, there is one out-standing feature which has influenced living conditions more than any other—sanitation.

This may be said to be the age of sanitation. Sanitary considerations are now properly given first place, since health is the most important asset of the individual, as of the community. And as the place of clay products, such as sewer pipe, in the scheme of sanitary construction is prominent, this industry necessarily occupies an important position in the field of sanitation.

That considerations of health and sanitation generally occupy the minds of the public to a much greater degree than formerly is demonstrated by a casual glance at the

advertisements of manufacturers appearing in the newspapers and magazines. If a product can possibly be put forward on health grounds, the connection is established. Everything from fly-paper to tooth-paste is advertised with reference to this all-important factor, showing that advertising men have realized the potency of the movement for health and sanitation.

This is making every community anxious to have plenty of sewers, and no city has all of the facilities that it needs. The growth of American communities, which is their most conspicuous feature, is constantly calling attention to the inadequacy of sanitary facilities, and the necessity for enlargements. No home, however humble, is so mean that it is deprived of proper drainage facilities, whereas, a few decades ago only the rich were supposed to be entitled to these privileges.

The manufacturer of sewer pipe and drainage material generally is marketing a sanitary agent the necessity of which is appreciated, and the field for which is growing. That is one reason why he can afford to adopt aggressive promotion methods, to keep an eye on the developments of this character in his trade territory, and to be satisfied, not merely to hold his own, but with making the steady and consistent gains to which increased consumption clearly entitle him.

Beating Him to It

"If you've got to fight," said a very successful scrapper on one occasion, "be sure to get in the first lick."

The advantage is always with the man who has scored the first blow—it may be a knockout. Certainly it leaves his opponent on the defensive. The things the boxers are all working for are speed and skill which will enable them to beat the other fellow to the winning punch.

In selling, as suggested in the foregoing discussion, it is often up to the salesman to explain why deliveries are not coming thru in the quantity which had been expected by the buyer. That means carrying out the idea suggested above, putting in the explanation ahead of the complaint, instead of after it.

The psychology of the proposition is fairly clear. If the buyer, before he has started to think about possible delays in delivery, is approached by the salesman, who tells him that car shortages are making it difficult to get the material from the plant and that there may be a few days' delay on some of his shipments, he can't begin to "raise cain," because the anticipatory step of the salesman has disarmed him, and, furthermore, has shown him that the brick concern has already been looking forward to see whether it will be able to render the best service. Thus the customer is impressed with the desire of the brick man to take care of his needs, even while his complaint is anticipated and rendered harmless.

The salesman who makes a point of presenting these explanations—some people might call them excuses—ahead of actual necessity will prevent a lot of sore spots which would otherwise develop.

Hustling for New Business

The most successful salesmen, like the most successful manufacturers, are those who are able to hold their old accounts.

The brick man who has won the favor of certain architects because he has given them honest and fair-minded suggestions and criticisms, and who never loses out with contractors because the latter have learned that he invariably plays fair, has less trouble making a showing than the more brilliant chap who is forced to hustle for new business all the time to replace the trade which he loses.

A new broom sweeps clean, and the surest test of sales efficiency is ability to keep coming back to the old customers, and to get their trade.

There is a good story told of the visitor to a small country town, who was admiring a particularly gorgeous sunset. He commented on it to a native, who looked at the magnificent phenomenon of the setting sun with critical eyes, and then said, "Oh, yes, it's pretty fair for a little place like Homeburg."

Lack of proper appreciation of the things at home is not confined to the small town. The business man who appreciates fully the business he is already handling is the exception, and that is why so many people have to keep busy hustling in the sales department of every organization. So much old business is being lost that the sales department is kept on the jump providing new business to take its place.

And it is worth remembering, too, that it costs a lot less to keep old trade than to acquire new. The old customer, if he is given fairly satisfactory service, can be kept on the books without much effort. He appreciates small courtesies and attentions, and when the house goes out of its way to show that it is not forgetful of the value of his patronage, he sits down and writes a letter telling how much he enjoys doing business with it. In short, the old customer needs just an occasional pat on the back, and a few kind words now and then to be kept in the right frame of mind.

The emphasis can profitably be laid on taking care of the business which is now being handled, because, if it is given the right kind of attention and the customer gets the right kind of service, he will be "Johnny on the spot" the next time he has an order for brick to place.

Brick for Garages

In spite of the fact that brick has rather severe competition in the construction of garages, it is easily the leading material in this field, and brick men have such excellent arguments in favor of its use that few garages should be built of anything else. Reference is being made now not to the big public garages, which are constructed almost universally of brick, but to the private garages with which canny apartment house men and others decorate the rear of their lots, in order to squeeze a little additional revenue out of their real estate.

The reasons in favor of the brick garage are numerous. In the first place, the fire insurance rate is less and the rate applied to nearby buildings, which are usually only a few feet away, is also lower. In the second place, these garages can be readily heated, while any other kind, such as a frame, stucco or sheet metal building, is very difficult to heat, and often no attempt is made to install heating equipment on account of the easily recognized fact that the equipment would have to be out of proportion to the size of the building in order to obtain satisfactory results.

Next, the revenue from a brick garage is always more than from one of poorer construction. For instance, an automobilist recently had the choice of space in a frame garage building, next door to his own apartment house, at $7.50 a month, or in a brick garage, considerably further off, at $10. He chose the latter, because he knew that his car would be much less likely to freeze up in a brick building than in one built of frame.

All of these things taken into consideration, it looks as if the man who builds a garage, whether for his own use or for rental purposes, of any material other than brick, is adopting a penny-wise and pound-foolish policy.

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

IMPORTANCE OF EXERCISING CARE IN THE PREPARATION OF THE RAW MATERIAL AND THE MOLDING OF THE WARE

THERE ARE THREE PREREQUISITES to the making of a good burned clay product—good raw material, proper methods of manufacture, and good workmanship. Without any one of these three necessities the quality of a product usually falls below grade. Also, five different stages are passed thru by the clay in its route from the pit to the shipping platform, which are; winning the clay; preparation; forming; drying, and burning.

It is hard, if not impossible, to pick out any one of these five operations and term it the most important, since each stage has such a widely overlapping influence upon that which follows. While few would hesitate to point to the fifth, that of burning, as being unquestionably the most important, yet the ability of the clay to successfully pass thru this stage in the manufacture is largely determined by the care that is taken in especially the second and third divisions—preparation and forming.

This is true because, occurring at such an early stage, the handling of the clay at these points very vitally affects the drying and burning qualities, and should trouble be encountered in the pugmill or in the die, it will show its disagreeable visage in the form of excessive lamination and cracked ware long after the tempering and shaping stages have been passed.

FOUR METHODS OF SHAPING CLAY PRODUCTS

There are, of course, four methods of shaping or molding clay products, these being classed as follows:

(1) The dry-press method, which calls for a water content in the clay of from eight to twelve per cent.

(2) The stiff-mud process, in which the clay contains from sixteen to twenty-two per cent. of water.

(3) The soft-mud process, by which the clay is tempered to a soft, sticky mass, containing from twenty-two to twenty-eight per cent. of water.

(4) The slip, or casting method, in which the water content runs from forty-eight to fifty per cent.

The dry-press method of manufacuring brick is sometimes more expensive than the stiff-mud and is rapidly being replaced, wherever possible, by the latter method—the auger machine is continually supplanting dry-press equipment. Of course, many clays will make a satisfactory product only when treated by the dry-press process, and in this case the method is best retained.

By far the most popular process is the stiff-mud, its use covering not only the manufacture of brick, but of all other forms of cruder clay products, and for that reason, some pertinent remarks about the operation of the pugmill and auger machine, which govern, to a great extent, the character of the product produced, should be of value.

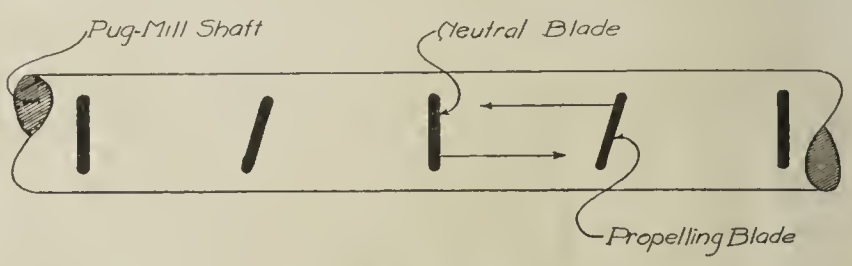
GREAT CARE REQUIRED IN PREPARING CLAY

Possibly no other stage in the manufacture of a burned clay product on a plant using the stiff-mud process is the source of as much trouble as that of preparing and molding the clay. Great care must be exercised at these points in order to insure the production of a first-class product and the success with which the clay passes thru this stage is dependent upon three factors, namely, its consistency, the kind of machine used, and especially the die.

It is of prime importance that the clay be evenly and thoroly tempered. If dry clay is present when the clay bar issues from the die, it will absorb moisture from the better tempered portions of the column and cause the bar to bulge into distortionate shapes. As a result of this absorption, the outer layer of the clay column shrinks and if the dry area is large enough, the stresses that will be set up by the absorption of this moisture will be great enough to crack the brick. Even tho cracking does not result, the structure of the column is weakened by the continued absorption of water by the dry areas which causes the column to swell until a thoro dissemination of the water is attained.

SUPPOSEDLY COLLODIAL STRUCTURE ALSO CAUSES SWELLING

A technical explanation of what causes plasticity also reveals another cause for the swelling of the clay bar. One theory of plasticity is that it is caused by a colloidal substance which forms a coating over the granular particles which make up the clay and which has an action very similar to that of a sponge with many small pores. The plasticity of the clay, therefore, is dependent upon the amount of this colloidal substance that is present.



View of Pugmill Shaft, Showing Position of Propelling and Neutral Blades, Arranged to Increase Tempering Ability of Pugmill by Augmenting Pressure on Clay

Thus, when the clay bar issues from the auger machine, the colloidal matter, having an action similar to a sponge, swells when released from the pressure exerted in the die. This amount of swelling or expansion of the column is preceptible on practically every clay when it issues from the machine but it is not ordinarily strong enough to cause any deleterious results.

In the case of a poorly tempered clay, the clay bar, upon issuing from the machine, must not only stand that amount of expansion or swelling caused by the colloidal matter, but is subjected to the greater strains that are

set up by the dry portions absorbing the moisture from the better pugged material. Tempering the clay in an open pugmill greatly reduces the extent of trouble arising from this source since it produces a more consistently pugged material.

INCREASING THE EFFICIENCY OF THE PUGMILL

Despite the importance of the tempering operation there are but two machines designed for this work—the pugmill and the wetpan. Of these two machines, the wetpan is very much the superior in its ability to make clay plastic and strong, but its limited capacity and comparatively high cost restricts its use to those plants where a well, or excellently, pugged material is absolutely essential. Sewer pipe manufacturers constitute, thru force of necessity, the only group manufacturing cruder clay products that utilizes the wetpan. However, clay plant owners have long desired a machine that would combine the excellent pugging ability of the wetpan with the speed and economy of the pugmill, and one means of making the pugmill a more efficient device is to place neutral arms between the pitched arms on the shaft.

The wetpan's ability to temper as well as it does is due to the tremendous pressure that the mullers exert upon the clay, forcing the water well into its pores. An excellent illustration of the action that takes place in the wetpan is offered by the manner in which a dry sponge absorbs water. If a sponge is allowed to lie in a vessel of water without being manipulated, it requires a long while to become saturated. But one or two squeezes produces immediate saturation.

In the pugmill, as it is used today, this action is entirely lost, the clay being forced thru the mill by the blades without meeting at any point pressure similar to that obtained in the wet-pan. Installing the neutral blades between the propelling ones in the manner shown in Fig. 1 affords a squeezing force—a pressure similar to that obtained in the wet-pan.

REDUCING LAMINATION LOSSES AT PUGMILL

In the operation of a pugmill, it is well to remember that fifty per cent. of the temperature of the clay bar is produced by friction in this machine. The more the clay is churned and heated the more trouble will be had from lamination. The object then becomes one of getting the maximum issue of the clay bar per revolution of the shaft. When this is obtained, lamination is decreased and the drying and burning losses will be appreciably lowered, and the nearer the condition approaches the ideal, the lower will the barometer of those losses sink.

In working toward this end, the speed of the machine is one of the first things that must be given attention. The machine should not be run to a greater speed than is called for by the capacity of the plant. The hopper of the pugmill should always be kept filled to the top so that no matter what the speed of the machine may be the knives will not be allowed to repeatedly work upon the same clay, as is the case when the pugmill is not kept filled to capacity.

The knives should never be allowed to rest or to work the same clay over—conditions which are caused by either running the machine faster than the capacity of the plant calls for or not feeding it the amount of clay that is necessary to keep it busy. The knives, by churning and rechurning the same clay, not only greatly increase its temperature but also, by their repeated cutting, produce many more slicky divisions of the original mass, which often do not heal under the pressure exerted by the die and consequently cause acute cases of lamination. More attention paid to this stage of manufacture will be richly rewarded by greatly reduced drying and burning losses and by the elimination of lamination.

In other words, the pugmill should be run full of clay, so that in ten hours' time it will turn out just the amount of material required by the plant. It should never be allowed to slow down, nor is it advisable to run it above its capacity. Another feature which presents itself at this point is that, unless the pugmill supplies a sufficient quantity of well tempered material to the auger machine, that machine will have to run empty—at the expense of a very aggravated case of lamination.

TWO TYPES OF AUGER MACHINE BARRELS

Furthermore, the shape of the barrel on the auger machine plays a very vital part in the quality of the product. In order to get the best results, the auger machine barrel should be tapered to the die, eliminating any possibility of lamination which might be caused by clay catching in corners. Figs. 2 and 3 show two different types of auger machine barrels, the first of which causes the clay to accumulate in the corner and, in working out, laminate, while in the second, due to its smooth, tapered surface which leads directly to the die, the clay cannot gather, either to cause lamination by working out gradually itself, or by impeding the passage of other clay into the die and setting up differential flow lamination.

A single wing auger of a high pitch will give the maximum issue of a clay bar per revolution and will materially reduce the loss of power. However, in operating the high pitch auger, the machine must be kept full of clay.

Some of the causes of lamination which have been cited in the preceding paragraphs, may be overcome by moving the die farther away from the auger which tends to destroy auger laminations. By making this change, however, a tendency is created to increase differential flow laminations. These, however, are much less troublesome than the auger laminations. By increasing the distance from the end of the auger and die you also reduce the capacity per hour of the machine and increase the power required to force the clay thru the die.

The knives of the pugmill should be renewed at very frequent intervals if the best results are to be obtained. After a long period of service, the knives become worn and are unable to push the clay ahead as rapidly as they should. The clay continually slips back and is again pushed forward by the knives which, under ordinary circumstances, it would not have touched again. This also causes additional slicky surfaces, increased friction and a higher heat, increased lamination and wasted power, since just about twice, and in some instances more, power than necessary is used in getting the clay to the mouth of the pugmill.

TEST TO DETERMINE AMOUNT OF LOST POWER

The amount of lost power can be easily ascertained by the following method, and by making this test under favorable pugmill conditions and then conducting it under unfavorable ones, an idea can be obtained of the saving in power which results when the pugmill is properly operated.

Determine the temperature of the clay as it goes into the molding machine and then take the temperature of the clay as it comes out in the bar. A rise in temperature is due to lost power. In knowing the volume or length of the clay bar emerging from the die in a unit of time, you can then determine the amount of water it contains. When this information is obtained, the following formula will show the number of heat calories: specific heat of clay times its mass, times its rise in temperature equals the calories of heat (lost).

By making this test under both favorable and unfavorable pugmill conditions, the excess power that is being used can be determined and the source of many troubles uncovered, besides making it possible to establish a standard to which the pugmill should be operated.

TESTING PLASTICITY OF CLAY

Undoubtedly, the best results can be obtained at the preparing and molding stage if some idea of the tempering qualities of the clay being used could be obtained. A practical test that can be made on any plant without the use of any special equipment or apparatus and which will give an approximate indication of these qualities, is the slacking test.

To conduct this test, make up a portion of the clay into a ball, place it in a pan of water, and allow it to slack. The amount of time required by the clay in tempering is proportionate to the amount of time in which it slacks. The clay that slacks very slowly should be allowed more time in which to be tempered while one that slacks rapidly requires much less time.

Which Drive Will Wear Out First?

Which belt should last longer, the one in Fig. 1, or that shown in Fig. 2? All conditions are the same in each case, with the exception that in Fig. 2, the driving and driven pulleys are closer together than in Fig. 1. We will assume that the idler pulley in Fig. 2 has no wearing effect on the belt, since it is a fact that idlers, when properly designed, have very little influence upon the life of the belt.

This point of wear is not given enough thought, and that is why the question is being put in this way. Can you look at the sketches and decide immediately that the long belt as shown in Fig. 1 will outlast that shown in Fig. 2, or will your judgment go the opposite way,

It has been argued many times that long drive belts are more elastic and are less liable to slip and they last longer than the short drive belts. On the other hand, many logical arguments have been advanced to show that short drive belts are longer lived than long ones.

Altho, the question will not be answered positively here, certain logical and simple reasons are presented to show why long belts should last longer. By actual measurement the belt in Fig. 1 is 2.28 times as long as the belt in Fig. 2. Therefore, while the belt in Fig. 1 is making one complete revolution, that in Fig. 2 must make 2.28 complete revolutions, the speed of the belts being equal. The belt in Fig. 2 is, therefore, meeting and rubbing against pulleys twice as often as is that in Fig. 1. In fact, belt Fig. 2 is seldom off of any pulley. The pulleys are set so close together that there is very little gap between.

Inasmuch as it is the rubbing against pulleys that largely wears out belts, and since the belt in Fig. 2 rubs 2.28 times as often as that in Fig. 1, in a given day or month, it seems logical to conclude that the life of the longer belt will be 2.28 times as great as that of the shorter. In other words, the belt in Fig. 2 will wear out over twice as fast as will the belt in Fig. 1, provided all other conditions are the same—the per cent. of slip, the arcs of contact, speed, tensions, loads, etc.

However, in actual practice this equality of conditions seldom, if ever, exists. When the arrangement shown in Fig. 2 is properly designed, it has many advantages over that shown in Fig. 1. Much less space is required, the initial cost of belt is less, the arcs of belt contact and belt pulleys are greater, initial tension is practically reduced to zero, and the drive becomes more dependable. The belt is not so liable to slip and is, therefore, not so liable to wear out quickly. Consequently, in actual practice, with these advantages on the side of the arrangement shown in Fig. 2, it is not easy to predict which belt is going to wear out first.

Installations similar to that of Fig. 2 have demonstrated that they are as long lived as the longer belt drives. Still, it must not be forgotten that the belt in Fig. 2 "goes around twice as often" and is, therefore, theoretically subject to twice as much wear as the belt in Fig. 1.—*N. G. Near.*

Some Burning Information

One of the most important and vital things to be determined in a clay products manufacturing plant is the highest temperature at which the clay can be fired. Were this information constantly at hand and continually impressed upon the minds of the burners, an enormous amount of spoiled ware could be saved every year.

Know the maximum temperature your clay will stand without overburning or bubbling. Having determined this temperature, carry your fires up to a point not closer than eighty degrees and soak the ware at that temperature.

A clay having a narrow, sensitive burning range should be matured at an even lower temperature than this by holding the temperature constant. On the other hand, a non-sensitive clay may be fired as much as twelve hours faster than the sensitive material by rushing the fires up to a point a few degrees above the safe point—which is eighty degrees below the maximum temperature the clay will stand without overburning or bubbling without running any great risk of spoiling the ware.

"I Wisht I Was a Li'l Brick"

C. H. Merrick, a brick manufacturer of Syracuse, N. Y., distributed a "silent booster" for brick at a recent weekly dinner of the Kiwanis Club of that city, in the form of a "li'l" poem, printed upon cards placed at every plate. The poem read as follows:

I wisht I was a li'l brick
A-settin' on a sil—
A-doin' nothing all day long,
But jes' a-settin' still.
I wouldn't eat, I wouldn't think,
I wouldn't even wash.
I'd set and set a thousand years—
'nd rest myself, b'gosh.

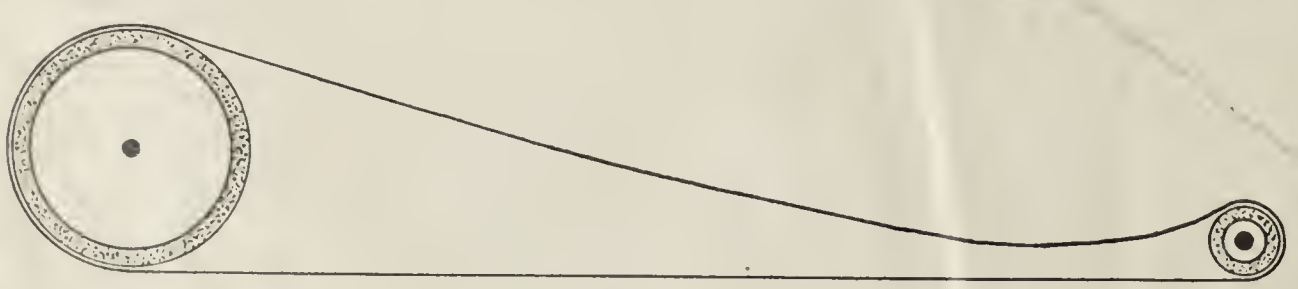


FIG I



FIG II

QUESTIONS *and* ANSWERS

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QUESTIONS sent to this Department will receive prompt attention, answers being returned by mail as soon as possible. Those that have wide interest will be published for the benefit of other clayworkers. The names and addresses of questioners will be held in confidence, and no letters will be forwarded them without first being scrutinized

Recovering Coke from Kiln Ashes

819. *Pennsylvania—Can you tell me of any process that is being used to recover coke from ashes that come from burning kilns? Do you know of any manufacturers making machinery for this purpose?*

We have a hazy recollection of a discussion of some such device but cannot remember at this time exactly when and where and who makes the machine. If we remember correctly, the method used was to wash the ashes with water, thus removing the lighter particles and leaving the clinkers and unburned coal or coke. The process then called for the separation of these two materials by hand, which would be very simple inasmuch as it is simply a matter of picking them apart.

If any of our readers can give us any information on the above subject, a letter addressed to the Editor will be deeply appreciated.

Steam and Waste Heat Dryers on Iowa Clays

820. *Iowa—We are having considerable trouble in drying our drain tile in a waste heat tunnel-dryer. We have in operation a nine-tunnel dryer, the suction fan runs at 85 R. P. M., exhaust fan at 132 R. P. M. The temperature varies from 130 to 140 degrees in each tunnel. Almost one-half of the ware is cracked when it comes out. We take out and put a car in each tunnel, keeping sixteen cars in all the time. It takes about two days for a car to go thru. Our mixture consists of joint clay and shale mixed half and half, and thoroly pugged. In your opinion what is our trouble; can you suggest a way to overcome this loss by cracking?*

"The fundamental difficulty in this drying condition is that the dryer is not of a type suited to the clay being used," says Homer F. Staley of Iowa State College, Ames, to whom this problem was submitted. "Joint clay, even when mixed with an equal quantity of shale, is generally a very tender drying clay and not suited to the ordinary type of waste heat tunnel dryer. Tender clay should be died in periodic dryers, rather than in progressive dryers. The old fashioned periodic steam dryer was used successfully for drying many tender clays in Iowa. In later years, since waste heat dryers have become generally popular, the latter have replaced, in many plants, the periodic steam dryer. In every case where the clay was a tender drying clay, the results have been disastrous.

"The periodic steam dryer permitted ware to be thoroly heated up before drying commenced. It has been proven in practice, and in a long series of experiments, covering a period of two years, we have shown in our laboratories in the Ceramic Engineering Department at Ames, that from the principal of physics this is the safest method to use in drying tender clays. The drawback to the use of the old periodic steam dryers was that there was little circulation in them, and drying was slow. This has been overcome by the use of circulating fans inside of the dryer in several instances. We expect to complete, within the next couple of weeks, a simple dryer of this type in our laboratories at Ames. This dryer will hold a standard dryer car load of drain tile or hollow block, and we will then be in a position to demonstrate its adaptability to drying various clays.

"Of course, a waste heat dryer working on the periodic system would find a wider field of use than steam dryers. Like the periodic steam dryer, it should be provided with a system for recirculating the air in the dryer. At present there is no such dryer built, but we are building a dryer of this type at Ames, and hope to have it in operation within a few weeks; we would be pleased to report to your subscriber the adaptability of this type of dryer for drying tender clays.

"Your subscriber does not state whether he has any steam available or not. If steam is available, a combination steam and waste heat dryer, fitted with an air recirculating system, might be devised to suit his needs.

"As a palliative to the trouble he is having from cracking in drying, we would suggest that he add about ten pounds of common salt to every ton of clay, as it goes to the grinding machinery. This has a decided effect on reducing the cracking of many tender clays. It slows down the drying in the earlier stages so that the whole ware can be heated thoroly before the outside has dried sufficiently to cause cracking. Water from the inside of the ware comes to the surface as fast as drying takes place there, and the piece of ware is dried as a whole rather than on the surface only."

Cooling Drain Tile Crack at Low Temperatures

816. *Ohio—Twice in my experience I have had to do with the burning of drain tile that cracked in the latter period of the cooling process. In one of these cases, the cracking became most aggravated at and below 300 degrees Fahrenheit and continued to a slight extent until the kiln was more than half emptied. Some cracked on the way to and others when on the stock piles. The last kiln of the season was cooled very slowly; no openings being made in it at any point for weeks, the result being little better than when cooled much more rapidly. Unlike most cooling cracks, these open to the approximate average of one-sixteenth of an inch. Any information will be appreciated.*

We regret that you have not given us as much information as we would desire in order to give the best possible answer to your question, but we are presenting two theories which

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have been taken "out of the air," as it were. Beyond these theories we have no idea as to how the difficulty which you mention may be overcome.

First: Our supposition is that the material being used is not homogenous; second, that it is high in silica content.

Our first theory, therefore, is that the material used is not thoroly mixed at the pit rolls, also that it is insufficiently tempered. The result from the above is that the ware, composed of materials differing in relative coefficients of expansion, is heated to high temperatures, approximately 1,700 to 1,800 degrees, at which the entire mass is in a soft state with no internal stresses or strains. As the ware cools the various streaks, clots or areas of differing materials commence to exhibit their individuality. One portion has an expansion coefficient of .005, another .0005, and still another .001.

At the lower temperatures, between atmospheric and 400 degrees Fahrenheit, the strains set up due to the unequal expansion is most marked; the ware is hard and brittle and most susceptible to cracking and checking.

The remedy here would seem to be thoro grinding and mixing of all constituents and sufficient tempering to produce a uniform piece of ware.

Our second theory, concerning high silica content is this:

In some surface clays the material is very highly silicious. This body may, therefore, have expansion coefficients in its two constituents (namely clay and silica) that vary as much as ten multiples or even more.

It is evident, therefore, that at the lower temperatures noted the stress set up internally due to unequal expansion or unequal contraction is enormous and may cause the cracking in the ware even at atmospheric temperatures.

If the last mentioned is the case, we hesitate to offer a solution other than using more clay and mixing the material better.

* * *

Far West Shales That Take a Glaze at Cone 07

817. *California—In "Brick and Clay Record" for February 13, 1917, there is an inquiry relative to salt glazing a red shale silo tile, and in the answer it is stated that the usual "dope" handed out by ceramists is that 2,100 degrees Fahrenheit is needed, but some exceptions are noted in clays of the Pacific Coast region, which will salt glaze at from 1,700 to 1,900 degrees.*

This seems to me to be quite remarkable. The Pacific Coast seems to be a favored region. Perhaps it is the climate. At our plant we often salt glaze at 2,000 degrees, and would be quite interested to know where they salt glaze at the low temperatures mentioned. We would like to know what kind of a clay mixture it is that takes salt at 1,700 degrees. Any information along this line is very interesting, as the price of fuel is always going up, and there is quite a chance to save money here if it can be done. As I understand it, salt volatilizes at 1,400 degrees Fahrenheit, and I do not see why a kiln could not be burned off at 1,600, provided the pipe were hard enough at that temperature. Of course, I would not expect a clay to salt glaze at 1,600 that would nat take salt at 2,000, but it is possible to bring the fusion point of the clay down so that it is as hard at 1,600 as it was before at 2,000. If I could bring this fusion point down with a red clay addition to the regular mix, the red clay itself being a clay that takes a good salt glaze, I do not see why a kiln could not be burned off at 1,600, as well as it could at 2,000. Would like to see some more discussion in regard to this point, as it is too much guess work to take a whole kiln of pipe and try to salt glaze without being sure beforehand that it is done elsewhere. This kind of experimenting costs too much money.

Two shales in the State of Washington when made into

SAY "I SAW IT IN" BRICK AND CLAY RECORD

sewer pipe have taken a satisfactory, but not brilliant glaze at cone 01 on top and cone 05 to 07 on the bottom. Cone 01 is rated at 2,066 degrees Fahrenheit, and cone 07 at 1,850 degrees Fahrenheit, but may go down at a lower temperature if reducing gases are present.

One of these shales analyzed as follows:

Silica	62.0%
Alumina	26.5%
Lune	1.0%
Iron Per	1.4%

Wants Advice on Curing Stoneware Blisters

818. *Indiana—We experience considerable trouble with blistering. This occurs in our stoneware, which is saggered or placed inside of open ware (jars, churns, and so forth). We use a glaze similar to the one you give in the December 19, 1915, issue of "Brick and Clay Record" under "Questions and Answers" No. 804. Our ware is one fire and slipped dry. The ware that is exposed to the fire never shows a blister, but the inside ware has this fault. Owing to this trouble we have lengthened our burn from forty-eight to sixty-six hours. This slow firing helps a great deal, but we know that we should receive good results with the above fault eliminated with a forty-eight-hour burn, if we could get at the direct cause of the blisters, and at what temperature they take place. We slow fire the first thirty-six hours without clinkering, then we clean out the ashes and give the boxes air underneath, and by the time we reach the forty-eight-hour period our kiln has reached a cherry red. At fifty-four hours we turn cone 2. At sixty hours we get cone 6 on top, and at sixty-six hours the kiln is done with cone 8 on top and cone 7 on bottom.*

Will some of our readers who have had experience along the line above mentioned volunteer some information that will help our correspondent out of his present difficulty? If such information is addressed to the Editor it will be gratefully received and given the kindest attention.

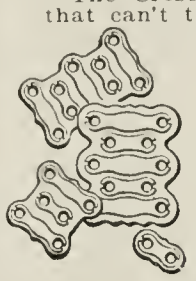
Objects to State Pushing Concrete Silos

Cudgels have been taken up by the Kentucky Retail Lumber Dealers' Association, in behalf of wood and other silo building materials against the Kentucky Department of Agriculture, which is again charged by this organization with unduly favoring the monolithic concrete type of silo. The association at its recent convention held in Lexington, Ky., directed that its legislative committee, with the assistance of its special silo committee, should take up with representatives of the Kentucky Legislature this matter of favoritism on the part of the state officials and undertake to check it, either by prohibition of special favors or by refusal of an appropriation for the work. It was reported by the special committee, headed by W. C. Curry of the Alfred Struck Company, Louisville, that the state department has not only been recommending to farmers the construction of monolithic concrete silos, but that it has been supplying forms for construction of these silos by the farmers and paying the expenses of superintendents sent around to direct the work. Members of the association usually handle building materials other than lumber and some of them are agents for the various silos on the market. They do not want to be put in the attitude of obstructing a silo building campaign on the part of the state department, but they do vigorously insist that it is not fair to use the state's money obtained by taxation on all industries to promote the interest of one against the others.

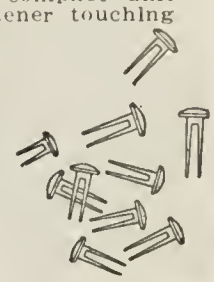
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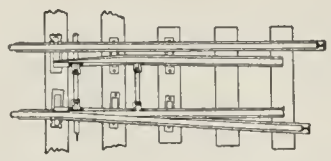
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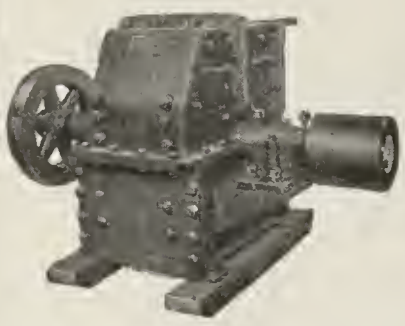
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A Place Wherein Letters That Have General Interest Are Published and Commented Upon

Says Dry Pressed Brick Are Superior

This is the kind of letter we like to get. It comes from a reader who shows that he is alert; that he reads, absorbs and thinks about the things he sees in "Brick and Clay Record." Outside of the fact that we believe the author has been guilty of reading "Life," we have no fault to find with the following missive from Wm. A. Butler, of San Francisco, which bears the date of March 24 and which we commend to you for a thoro reading:

I read with interest the "Lucky Number" of "Brick and Clay Record," dated March thirteenth. One of the particularly interesting articles is under the caption of "Clay Products in Engineering Construction," by E. H. Darling, M. E., with a note that the paper was read before the Canadian National Clay Products Association.

While the article is interesting in itself, it knocks brick work rather hard, and states that according to the by-laws of some cities, we will get twelve times as much strength from a dollar invested in concrete as we would get from the same amount of money invested in brickwork.

He follows the lead of many other writers in quoting F. B. Gilbreth, who claims such an efficiency in brickwork, that the bricklayer can, by following the Gilbreth System, place two brick in the wall, where he laid but one previously. One must stop to think that in this enlightened age the bricklaying fraternity must have read Gilbreth's book years ago, and has already absorbed all the little points that he had to give. While the book will interest the novice or one unfamiliar with the practice of bricklaying, the thoro bricklayer has a great deal more efficiency than is thought of in the Gilbreth philosophy.

Now, the strength of brickwork must depend on the quality of the brick more than anything else, and the best mortar in the world will not prevent a wall from crumbling if the brick are unfit to support the weight above them. Therefore, we should classify brick according to their strength and not say that "a brick's a brick."

Let us see: there are three processes of brickmaking and I shall name them in their order. First, the soft-mud, of two kinds, namely, the hand-made and the machine-made brick. The machine made is better because there is more clay pressed into the molds, making a denser body, an evener and smoother brick.

Second, the stiff-mud brick, which has less water and more clay than the soft-mud brick. Theoretically and in reality the stiff-mud brick is superior in every way in strength and durability to the soft-mud brick made from the same clay. Of course, it requires more heat to burn the stiff-mud brick to hardness, as it requires more clay to make the stiff-mud brick of the same size as the soft-mud brick.

Third, the dry-press or properly called semi-dry pressed brick. This brick, properly made and properly burned, is superior in every way to the stiff-mud brick. It requires more clay to make a given size brick by the dry-press system than by the stiff-mud process and also the dry-press brick requires more fuel.

And I would like to go on record as saying that having a clay that can be worked by the three named processes, that the dry-press brick is the superior in every way and for every purpose to brick made by any other process, if properly made and properly burned.

Fire brick are no exception to the rule, and the best grade of fire brick for ordinary furnace purposes are the dry-press fire brick.

Now, about lime mortar for brickwork, if the mason work is alternately wetted and dried daily for one year, the mortar will crystallize back to its natural limestone state. Brickwork laid with lime mortar in moist sand will harden in precisely the same manner, where the work above ground



never hardens to any great extent unless continuously wet and dry.

Our reason for publishing "Clay Products in Engineering Construction," by E. H. Darling, M. E., was that it contained some food for thought. "Brick and Clay Record" does not believe that patting a man on the back helps him very much. In fact, it may even result in some expense to himself in replacing bursted buttons on his vest or necessitating the purchase of a new hat.

We believe that our readers respect us because we try to lay things bare in a friendly manner. You know it is true that you are helped more by a friend who warns you of your weaknesses than the one who tells you that you are doing fine when in reality you are not.

Mr. Butler's defense of the bricklayer is interesting, especially inasmuch as Gilbreth's book is widely read.

The classification of the three processes of brickmaking in order of the quality of product produced, according to Mr. Butler, is worthy of some attention. We are, however, inclined to differ with him in his statement that dry pressed fire brick are superior to hand molded shapes. It is a matter of common knowledge that the type of fire brick which best resists the transmission of heat is that which is very porous. We cannot see how a tightly packed mass of clay will make a porous brick. Of course, the dry pressed fire brick serve very well for certain purposes, but we do not believe that they are entitled to the classification "best grade."

Wage Systems

On page 657 of the March 27, 1917 issue of "Brick and Clay Record," it will be remembered that there was published in the Superintendent department an item entitled: "An Interesting Bonus System Experiment." The last paragraph of this item read as follows: "If anyone can offer suggestions looking toward the revamping of the plan outlined above so as to make its application successful, or can throw any further light upon the requirements of the bonus system to make it successful, these will be gratefully received by the Editor."

The following letter is in answer to this invitation for suggestions from the Editor and is certainly worth a careful reading. It speaks about a subject that is of great importance now and which is destined to become of even greater moment.

W. O. H. of the Springfield (Ill.) Drain Tile Company says, under date of March 30:

The writer is very much interested in the bonus experiment mentioned under the Superintendent's column in the last issue. I think the name of the system tried is incorrect as it is really a form of the differential system. The great trouble with these efforts to put clay plants on piece work or bonus or whatever it may be called, is that the proper knowledge is lacking as to the effects of the different methods of wage payment, day work, piece work, premium, differential, and bonus. It depends largely on the nature of the work what method should be used. Thus, the piece work plan could be used provided that the price to be paid is carefully determined by a series of time studies, or actual experiment in which the workmen co-operate and then they are assured that this rate will not be cut.

In the bonus system a definite time should be set for accomplishing a certain task and an extra payment made if it is done in less time. There should be a fixed day rate, however, no matter what he accomplishes, as there are conditions sometimes which he cannot control and this is particularly true in clay plants. The bonus is based on a division of the time saved in wages by shortening the time, between the employer and employe. The idea of going into the extra profit caused by the increased output is really getting into the profit sharing system, since the only thing the workman has to save for the employer is time, time of his own and time of the equipment.

In studying the different wage systems, it seems to me that



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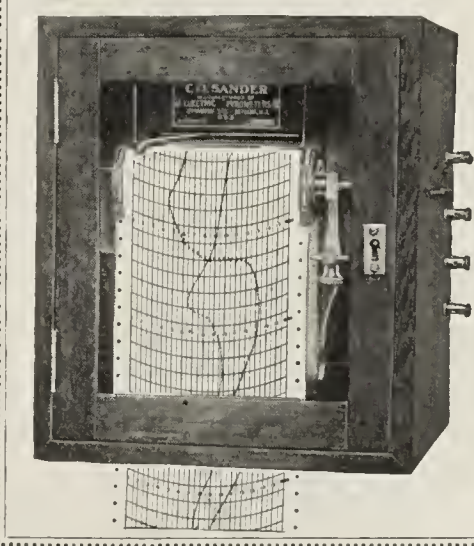
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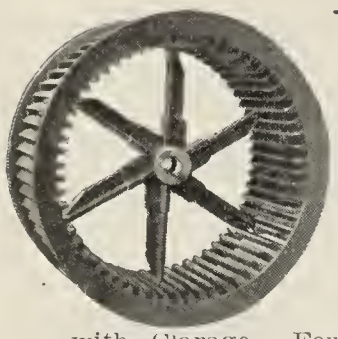
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the only basis for increased pay to the worker is really the time element, since this involves not only the pay of the worker but the capacity production of the plant and this is especially important in the clay business where large capital outlay is necessary and is absolutely fixed capital.

In the Taylor differential system, a standard time is found, and piece rate paid on this, and it is very high for high efficiency, but a deduction is made for falling below the standard. This is only suitable to high grade men and high grade work. In the efficiency system, the men are paid by day wages, but the bonus is based on the difference in time required for the work and time set for doing the work. If the standard is not reached he does not lose but he does not gain. The bonuses under this method are, however, large, and the chance great to make high wages. The bonus plan determines accurately the shortest time in which the work can be done and bases the bonus to be paid on that.

It must be taken into consideration that the labor on a clay plant is not of the type which can understand these systems well and therefore, some plan must be adopted which will increase their pay so they will know why they get it. They can readily understand the time element but cannot understand why the rate per piece should be varied as in the case noted. The error here was in not taking into consideration this time element. This plan could easily have been made workable by paying the same wages and guaranteeing these wages, and putting any bonus on the few cars above the amount they had been formerly setting. If they had been paid $2.25 per day of ten hours, and this guaranteed, and then a straight piece price of twenty-five cents per, when they set 50 cars they would have made only their wages but if they set 60 cars they would have increased their wages twenty per cent. and the day would not have been long enough for them to work. I have found this to be true because I have tried it out in a plant where we were paying day wages only, and I wanted to find out what the crew could do. In the setting gang we paid them 3½ cents per ton each but guaranteed them $2.00 per day. They had been setting less than 60 tons a day, but with this method they made as high as 65 and 70.

The only reason we did not continue this method was that we could not work continuously and it was difficult to keep the same men together and the gang resented it when one of the new men held back the whole crew, and cut their bonus down. The increase in their pay at the end of the week was very small but satisfied the men and we got our kilns set more promptly and could get overtime work without trouble.

The tonnage was determined for the week, however, and not for each day separately as there would be quite a little difference between the two. It would be better to make the period of time a month, as this would keep the men on the job, as they would get no bonus unless they worked the entire month, except in cases which they could not help, when their bonus was paid them for the time they had worked in proportion to the total. Better still, of course, would be the putting of a bonus on every ton set above the fifty tons and not making a piece rate for the first fifty tons at all, but make that a day's work. We had some difficulty in agreeing on a rate per ton, because of the different sizes involved and we finally made up a schedule, that is, the workmen and myself, covering every condition, which was satisfactory.

Here is another difficulty because during this period of trying out they tried to get the rate as high as possible. For this reason, regular time studies should be made of this work just as is done in machine work, and this should be made the basis of time limits, and the bonus paid accordingly. If the workman does not want to accept this he will have to go elsewhere because we know what can be done. Any attempt to set these rates by co-operation with the ordinary day laborer will prove that he has the best of the argument and the rates will invarialy be too high. It would be a boon to the clay industry if the labor could be standardized just as the machinery is standardized, because once done it would be done for all time, and would be applicable to any plant. In this respect, it would be entirely different from machine work, because in the latter case, the time studies must be made for every plant and even for every different piece of metal that is shaped or made, or assembled.

The clay business has been standardized pretty well by the machinery people, tho there is enough to be done yet in that respect, but we know pretty well when we buy a machine that it will turn out about so many tons a day under proper working conditions and when it does, the men have to



take care of it tho they can vary the output even on the machines in numberless ways. I have tried this day wage and tonnage plan even here and have found that it worked better than on setting, keeping the production uniform from day to day. Now, if with our standardized machines and our standardized products, the latter small in number and the same the country over, we could know just how many brick, or how many tons of hollow ware, a certain number of men *ought* to handle in a day of ten hours, or nine hours, and each plant would have no trouble in fixing the right kind of bonus to bring the output to that figure for that number of men. It is to be hoped that some philanthropist in the clay business will spend his good money in getting these studies made and then pass it on to the rest of us. Here is a work for the associations as well.

It is not to be doubted for a minute that the elimination of cost cutting and better labor conditions will result from such work, and if it means more money to the workmen there is no doubt but they will be interested. This work also involves the instruction of men (after the correct methods of doing the work is determined) in these methods, and it is this latter work which breeds the right spirit in a force of workers. But we most certainly cannot go so far as to say that because we have an increased output we shall figure out profit in advance on this increase and divide it with the worker. A product made is not yet sold. All the worker is entitled to is what he himself saves and these savings shared with the employer will eventually come back to the worker in part, at least, thru the increased ability of the employer to build better equipped plants, and make working conditions better.

W. O. H. has stated the subject so completely and so thoroly that we do not believe it requires that anything be added to it. We only have to say that the matter of having time studies made in the co-operative manner is certainly worthy of consideration.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

W. P. West, formerly a salesman connected with the Ironclay Brick Company, Ruggery Building, Columbus, Ohio, has again associated himself with that company and will sell its product over the state of Ohio.

W. T. Rossiter, president of the Cleveland Builders' Supply Company, Cleveland, Ohio, and W. A. Fay of the same company, recently returned home from a trip thru Florida and the South.

Dennis Burke, pioneer brick manufacturer of Detroit, Mich., died on March 23 after an illness of four days. Mr. Burke, who was seventy-four years old, opened one of the first brick plants ever operated in Detroit, fifty years ago.

Robert K. Dixon, of New York, N. Y., sole agent for the Standard Hollow Tile Company, recently made a business trip thru New Jersey. He handles both hollow tile and face brick, manufactured by the Standard Company, and it is quite likely that he returned to the metropolis with a goodly bunch of orders. He always does.

Secretary of War Baker was notified, on March 26th, by the United States Chamber of Commerce, of the appointment

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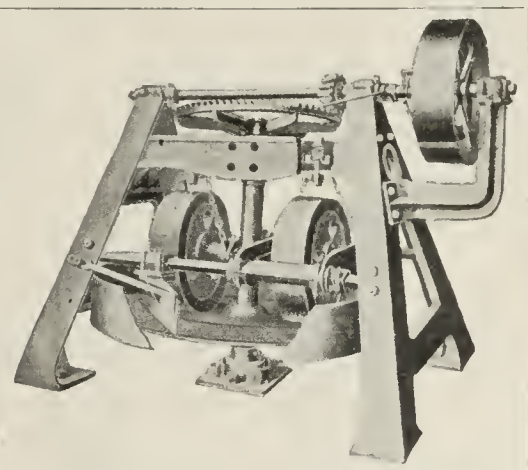
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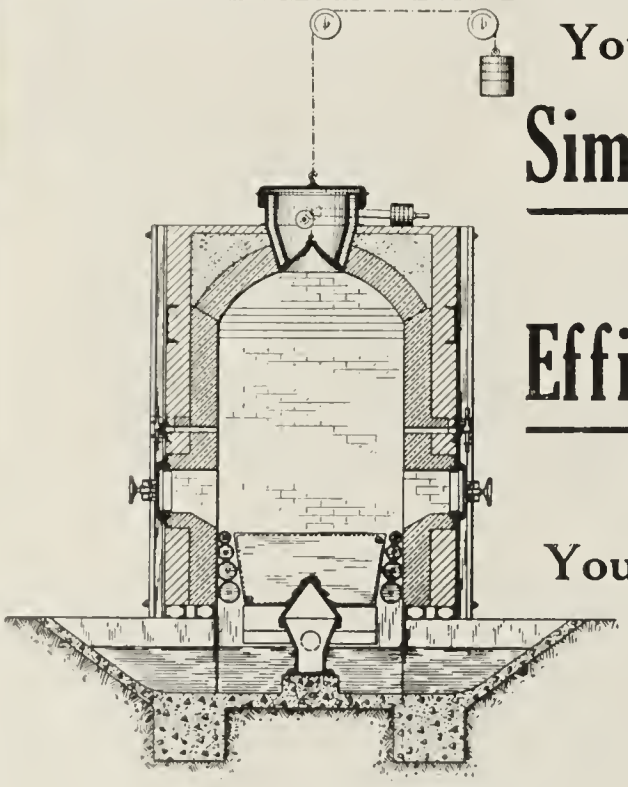
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of fourteen committees of business men thruout the nation to assist the council of national defense in purchasing raw material. As chairman of one of these committees appears the name of Fred L. Dickey, general manager of Dickey Clay Manufacturing Company of Kansas City, Mo. The chairmen of these committees met in Washington on April 2.

H. S. Tallard, who has been in the brick manufacturing business at Berlin, Conn., for the past five years, retired from the industry on April 1. Mr. Tallard had a five-year lease on the property which he operated and when this expired, the Berlin Brick Company, owner of the plant, decided not to renew the lease but to operate the plant itself. William Doty of Pittsfield, Mass., has been engaged as superintendent of the plant and is making plans to operate it on an extensive scale this year.

Marcus Eugene Jacobs, for many years conspicuously identified with the brick manufacturing industry at Berlin, Conn., died at his home in East Hartford, Conn., on March 26th, aged 77. Mr. Jacobs was born in Connecticut and early became interested in brickmaking. At the age of sixteen he had attained such proficiency in his chosen pursuit that he was given a position as superintendent of two yards by the Mansfield, Warren and Styles Company. From that time he never severed his connection with the industry. He remained with that firm for ten years and during the last two or three years was general manager. After leaving the Mansfield company, Mr. Jacobs, in connection with Frederick Bishop, purchased the brick yards of Loyal Ives. Three years later he sold his interest to Mr. Bishop and formed a partnership with George Ives at Hamden, Conn. Again, after three years, he disposed of his holdings to his partner and the next year acted as superintendent and manager of the Moulthrop yards at New Britain and during the two following years he held a similar post in the brick yards of Caleb Johnson at Newfields. From this town he moved to Berlin, Conn., where he entered into contract with Frederick Styles to manufacture brick by the thousand. Later he formed the Berlin Brick Company which he conducted for many years previous to his death.

California

The Porterville (Cal.) Magnesite Company is to increase the daily capacity of its plant from twenty to one hundred and twenty tons. Large contracts with eastern clay products manufacturers and iron mills have made this expansion necessary.

The Alberhill (Cal.) Clay Works was visited recently by the Riverside County Chamber of Commerce, which body was the guest of the Elsinore Chamber of Commerce. Work on Los Angeles contracts will keep the Alberhill plant busy for the next two months.

The Needles (Cal.) Brick and Tile Company has been formed by Earl Hodge and Anthony Beimer, and will soon start work on the construction of a plant which will have a capacity of 50,000 brick a day. Contracts to furnish the brick for the Hodges Block and the Masonic Temple at Needles have already been taken.

The plant of the Enterprise Brick Company located at King City, Cal., is being placed in readiness for operation, which will begin very shortly. The machinery, with the exception of one piece of equipment now on the way, has been put in operating condition and is in readiness to start. The Enterprise Brick Company has a daily capacity of 40,000 brick.

Gladding, McBean and Company are to take over the unfilled contracts of the Steiger Terra Cotta and Pottery Company, whose large plant at South San Francisco, Cal., was



recently destroyed by fire. Permission for the last of these, the new public library at Sacramento, was obtained this week. According to W. E. Dennison, plans for the reconstruction of the South San Francisco works are progressing rapidly.

The primary election of the Los Angeles (Cal.) Builders Exchange was held during March and resulted in a unanimous vote being cast for the re-election of James H. Bean as president. W. R. Simons of the Simons Brick Company was a candidate for the office of first vice president. Among those nominated by the various crafts for membership on the board of directors were W. R. Simons and H. B. Potter for brick and burned clay; W. E. Stardley, incumbent, by the brick and mason contractors; M. A. Burne, by the marble and tile manufacturers and W. E. Hoover and Frank Peck by the sand and gravel contractors. A new constitution was also adopted at this meeting.

Colorado

The plant of the Poudre Valley Press Brick Company located at Trilby, Colo., between Loveland and Fort Collins, has been sold by F. P. Stover to O. H. Krueger, a brick manufacturer of Denver.

A hand-mold brick plant is soon to be started at Coventry, Colo., by Robert Ashcraft, following investigations which he has made of the clay located at that point. Altho the enterprise at the beginning will be a small one, designed to take care of the local trade, Mr. Ashcraft intends to increase its capacity by the installation of modern machinery as soon as the demand warrants.

The brick plant of the Golden (Colo.) Brick Company is enjoying a large amount of business. In addition to turning out between 25,000 and 35,000 brick daily, the plant is manufacturing a great amount of hand-made material, together with special shapes for steel and blast furnaces. About fifty men are now employed at the company's plant.

Connecticut

The Wilson (Conn.) Brick Company, which lost several dwellings by fire last fall, has already started the erection of one new house on its property and intends to erect several more in the near future.

Practically all of the brickyards thruout Connecticut, particularly those in the vicinity of Berlin, the center of the industry in that state, have started to make ready for what they look forward to as one of the great years in the history of the business. Large gangs of men are at work cleaning up the clay banks and putting the machinery in order, pumps have been started and in another fortnight most of the yards expect to be in complete operation. The shortage of labor which handicapped manufacturers considerably last year is still a serious problem, but the owners are optimistic and hope to secure enough help to insure continued operation.

Idaho

F. O. McGill of Fairfield, Idaho, is to establish a pressed brick factory at Gooding, Idaho, that will have a capacity of twenty thousand brick a day. L. D. Sharp is associated in this work.

Many progressive measures were adopted by the Troy (Idaho) Fire Brick Company at the annual stockholders' meeting, held recently. A marked increase in the demand for its products was noted over previous years and the prospects for prolonged activity were sufficient to warrant the placing of the large earnings of last year into needed improvements, which will make it possible to

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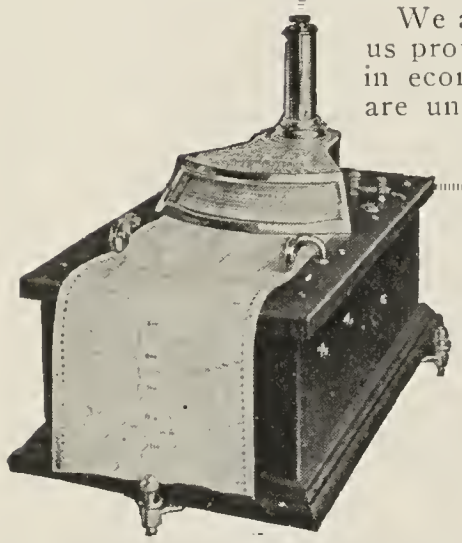
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fill a greater number of orders. Hereafter, a representative will be kept on the road constantly to secure additional business. At this meeting the following officers were elected: August Johnson, W. M. Duthie, John Johanson, C. V. Johnson and Charles Amos.

Illinois

It is reported that the Carlinville (Ill.) Clay Company recently made a generous donation to the Blackburn College located in that city.

The Continental Clay Company has been incorporated at East St .Louis, Ill., with a capital stock of $100,000, by H. H. Lamer, J. K. Walton and D. J. Caravan.

The East Peoria (Ill.) Brick Company, manufacturer and distributor of brick and building tile, has purchased new machinery and is increasing the capacity of its plant, according to a letter recently received from F. H. Kanne.

The Gem City Press Brick Company, of Quincy, Ill., managed by John T. Hummert, recently resumed operations after a shutdown of two months. In addition to the regular orders received, this company will furnish a large amount of brick to be used in the construction of a new school at Quincy.

As soon as weather conditions permit, the Chicago Retort and Fire Brick Company, of Ottawa, Ill., will begin mining operations on the fire clay deposits located at Goose Lake, Ill., upon which it has a lease and an option for purchase. Considerable work must be done before practical use of the clay deposits can be made. A railroad spur must be built from the Elgin, Joliet and Eastern line, which is about two miles away, a steam shovel installed, and a crusher erected.

Supplementing the meager information contained in the announcement published in the March 27th issue of "Brick and Clay Record," of the conflagration which swept the plant of the Abingdon (Ill.) Clay Company, comes the report that a loss of between $15,000 and $20,000 was suffered and that the large hollow tile plant operated by the company was totally destroyed. The fire started in the dryer shortly before 1 a. m. on March 19th, and spread rapidly until, within a half hour, it enveloped the entire plant. The lack of a water plug at the plant made any resistance to the progress of the flames impossible. According to E. R. Sturtevant, manager of the company, the factory will be reconstructed with a greatly increased capacity.

Indiana

Henry Lobbey and Roy E. Gaines, of Winslow, Ind., have completed the organization of the Southern Indiana Clay Products Company, which is capitalized at $600,000. The new concern has taken over the pottery and brick manufacturing plants of the Patoka Brick and Tile Company located at Huntingburg, and will erect another plant at Dale, Ind.

The plant of the Indiana Paving Brick and Block Company, located at Brazil, Ind., was overhauled and extensive improvements made during the winter, and operations were resumed on March 26. Workmen were kept busy on the plant, which is owned by Walker Winslow, for several months. According to a recent announcement, this company has moved its headquarters from Indianapolis to Brazil, Ind.

One of the most active members of the Evansville (Ind.) city water works board is John Andres, secretary and treasurer of the Standard Brick Manufacturing Company of that city. Mr. Andres has shown great interest in Evansville's civic affairs and enjoys the utmost confidence of the people of that city just as he does that



of those members of the clayworking fraternity who are fortunate enough to know him.

Extensive improvements are being made at the plant of the Cannelton (Ind.) Clay Products Company, which will increase its capacity from 15,000 to 20,000 brick a day. A new four-mold dry-press machine has supplanted the one previously used and a nine-foot heavy duty dry pan has been installed. The Cannelton Company is also planning to build two thirty-one foot, round, down draft kilns in the near future, increasing its battery to a total of five kilns. The capital stock of the company has been increased from $20,000 to $30,000. The directors are: Lee Rodman, president; M. F. Casper, vice president; and L. J. Branner, secretary-treasurer. Mr. Branner is also general manager of the company.

Great interest is being manifested at Evansville, Ind., over the fight being made by the Evansville Chamber of Commerce to have the proposed eleven-million-dollar armor plate plant located in that city. One of the leading members of the chamber of commerce is H. C. Kleymeyer, manager of the Standard Brick Manufacturing Company of that city. The state geologist, Edward Barrett, has reported that the mineral deposits in southern Indiana are sufficient for the proposed plant and it is pointed out that Evansville would be an ideal location for the plant. In the event that Evansville gets the plant the brick manufacturers of that city will be called upon to bid for a large number of brick that will be used in its construction.

Iowa

A loss of $18,000 was suffered by the What Cheer (Iowa) Clay Products Company, a $300,000 corporation, on March 19, when its big plant was damaged by fire. The flames, which sprang from an unknown origin, originated in the carpenter shop at the rear of the main building and gained rapid headway before the fire department of What Cheer was able to check them, due to the fact that the plant is located about a mile and a half from town. Little help could be gotten from the use of the company's fire fighting apparatus. It is estimated that $8,000 worth of unburned sewer pipe was destroyed by water, while the remainder of the $18,000 loss was caused by the flames.

Kentucky

At Augusta, Ky., the Phoenix Coal and Clay Company has been incorporated with a capital of $16,000 by Lewis H. Wolfe, A. L. Barker and Ben Harbeson.

After a suspension of operations for several weeks, caused by the high water and the threatened flood during the latter part of March, the Paducah (Ky.) Brick and Tile Company has resumed work, beginning on the manufacture of drain tile, for which a surplus stock of clay has been accumulated. The Ohio River twice this past winter has reached almost to, or past the flood stage, but at no time did it cause any special damage to factories located along its banks.

A. P. McDonald, sales manager of the P. Bannon Pipe Company, Louisville, Ky., reports that, while there has been nothing of unusual interest in a business way during the last fortnight, business is coming in faster than it can be handled. The company's plants are running to capacity and a continuation of the open spring weather is expected to greatly increase the demand. The year is going to be a big one in vitrified drain pipe sales, according to the present outlook.

The Tyler Building Supply Company, of Louisville, Ky., is finding brick in good demand as spring opens and is receiving numerous inquiries from prospective builders. This

The problem of maintaining tight valves is most effectively solved --when you equip with--

Jenkins Bros. Valves

Considering the service, they are more economical and far superior to the common metal seat types. Jenkins Bros. Valves have no metal-against-metal contact of seat; instead, there is the combination of brass raised seat and Jenkins renewable composition disc. The labor of regrinding is obviated. When repair is necessary, simply insert a new disc at expense of a few cents, and you have practically a new valve. Any dealer can supply. All genuine have diamond trade mark, as shown in the cut.



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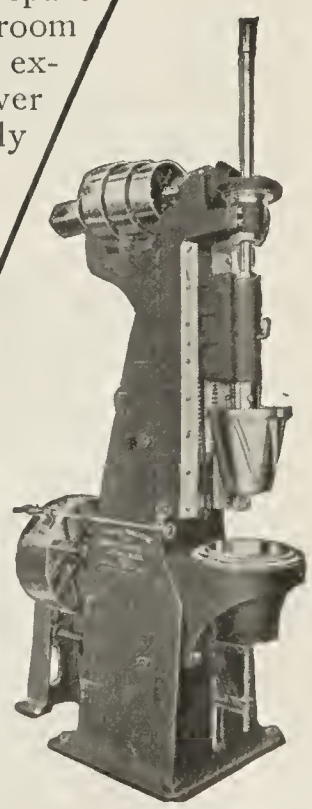
A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

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In any part of your plant, regardless of dust or dampness, you will get utmost satisfaction out of

Hettrick Canvas Belting

used daily in scores of brick plants for transmission, elevating and conveying. Hettrick belting is red stitched canvas—the kind that sticks, lasts, and does not slip.

Try it—you, too, will say with others that Hettrick Belting Beats Them All.

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Gold Medal Award



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THWING

HIGH RESISTANCE MULTIPLE RECORD

PYROMETERS

Their Merits are Vouched for by Hundreds of Satisfied Users

Ask for our New General Catalog No.8

THWING INSTRUMENT CO.

3336 Lancaster Ave. - Philadelphia, Pa.

company and other face brick concerns are figuring carefully on the order for the auditorium, which will be one of the important jobs of the season and which will shortly be ready for bids.

The Hillenbrand Brick Manufacturing Company, of Louisville, Ky., is operating on a full time basis with a million face and common brick on hand from which to make deliveries. The company has greatly increased its capacity during the last several weeks by replacing its crushing rolls with pulverizers, installing screens and other new equipment to the plant. A line of face brick, manufactured by the Adams Clay Products Company at Martinsville, Ind., has recently been added to the product sold by this company, which heretofore consisted only of the face and common brick made by it. The new line is an impervious brick and comes in matt and cut face, in a variety of colors. Oscar Hillenbrand reports that the company is getting many inquiries for the new product, and also satisfactory sales of its own material.

There is no longer any novelty in a big order for fire brick, or, in fact, anything unusual in declining big orders, according to J. H. Bell, sales manager of the Louisville (Ky.) Fire Brick Co. The company is operating its plants to capacity continuously and making shipments as rapidly as cars can be obtained to carry them. It is beginning to look as tho the car shortage situation will improve, altho Mr. Bell has seen such promises result in return to former conditions so frequently during the past year that he is not too optimistic about the prospects. The preparedness program which is being formulated will have the effect of increasing the demand for fire brick, while the government will probably require early deliveries on its contracts.

Maryland

The Hancock (Md.) Shale Brick Company, whose annual output now amounts to 5,000,000 colonial face brick, is repairing its kilns and making other improvements designed to increase the yearly capacity of the plant to 8,000,000 brick. Two nine-foot dry pans are to be constructed and elevating and conveying machinery will be installed which, with the present machinery, will be sufficient to attain the proposed output. A brisk demand for the company's product, with a market only partially supplied, has necessitated the improvements.

Michigan

An important transaction was recently consummated when the Michigan Face Brick Company, with offices in the Michigan Trust Building, Grand Rapids, Mich., contracted to take the entire output of the Grand Rapids Brick Company, an agreement which involves the manufacture and disposal of 25,000,000 brick annually. Some months ago, Chicago interests bought out the Grand Rapids Brick Company's plant and O. M. Carter was made resident manager. At the time of the change in ownership, the plant had a daily capacity of 75,000 brick. Immediately upon acquiring the plant, the new owners at once made arrangements to double its output by installing modern machinery. The entire plant is now being overhauled and the machinery installed. The transaction by which the Michigan Face Brick Company is to control the output was brought about by H. M. Barr, manager of that company.

Minnesota

The New Ulm (Minn.) Brick and Tile Company is enjoying a period of great activity. Among the large orders



that have recently been received by this concern is one which calls for the shipment of 200,000 common brick to Hendricks, Minn., to be used in the construction of a new bank building. Another shipment of 180,000, requiring twelve cars, has been sent to Arlington, and will be used in the erection of a new creamery and cold storage plant.

Missouri

The first of the month will, perhaps, find the new plant of the recently formed Kansas City Brick Company at Vale, Mo., in operation. Work upon the factory is progressing rapidly, it is reported.

F. C. La Fountain of the Reliance Brick Company, Kansas City, Mo., reports that business has been most satisfactory of late, in spite of the many civic and national tendencies that might have a bad effect upon the trade and business in general.

According to H. H. Crowell, sales manager of the Hydraulic-Press Brick Company at Kansas City, Mo., business is very satisfactory. The work of repairing the company's plant at Diamond Station, Mo., is now almost finished and it is expected that operations will be started in a few days.

The Western Paving Brick Manufacturers' Association, which has a suite of offices in the Dwight Building, Kansas City, Mo., recently opened new offices in that building which are now occupied by the consulting engineering department. Clark R. Mandigo, consulting engineer for the association, is in charge of the new department headquarters. According to G. W. Thurston, secretary of the association, the plants engaged in the production of pavers are all working to capacity and in many cases are well oversold.

Montana

The chamber of commerce of Glendive, Mont., is endeavoring to locate a brick and tile manufacturing plant at that city. According to present indications, and judging from the inquiries that have been received asking about the available clay deposits and shipping facilities, it is more than probable that a clay products plant will be built at this point within the present year.

Nothing but optimism can be discerned in a statement recently made by C. H. Bray, a brick manufacturer of Helena, Mont. According to Mr. Bray, "The manufacture of brick increased twenty per cent. in Helena last year and, with the installation of more machinery, which is already at the plants, the production will be further increased this year if the business continues its upward trend."

Nebraska

The Purington Paving Brick Company, which operates a large plant at Galesburg, Ill., recently opened a sales office in the First National Bank Building in Omaha, Neb.

New Jersey

The Enterprise Pottery Company of Trenton, N. J., plans to build an addition to its plant that will cost about $14,000.

The Hackensack (N. J.) Brick Company has its pumps going and has a gang at work getting the yards and sheds in readiness for the spring opening to take place shortly. The machinery is being overhauled and the yards are undergoing re-arrangement. The last brick this company had in its sheds went down the river in one of the first boats to start.

Prominent among the numerous clay products sold in the New Jersey territory is the "Newyorkco" building block, made by the New York Clay Products Company.



Marion

Steam Shovels, Dredges, Draglines and Kindred Machinery

IT was no joke—digging tough, lumpy shale like this, and the Moberly Paving Brick Company, Moberly, Mo., really couldn't blame its pit men when they seized every excuse for laying off the job of loading it by hand.

But as that didn't make up for irregular production, the Company bought a "Marion." Immediately, a change!

"MARION" NEARLY DOUBLED THIS FIRM'S OUTPUT, WHILE REDUCING HAND LABOR

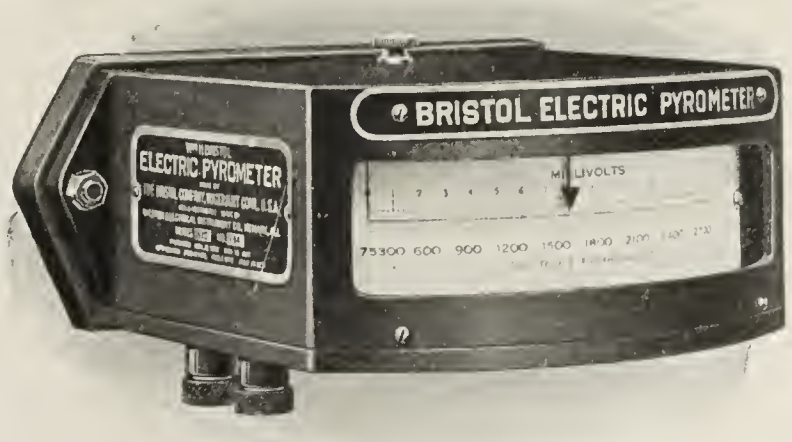
—effecting an increase from 40,000 "Missouri" Brick per day, to a capacity of 75,000 per day, with fewer men in the pit.

Perhaps we can help effect such economies in *your* plant. Write us the particulars; no obligation.

The Marion Steam Shovel Company, Marion, Ohio

Branches: Atlanta, Chicago, New York, Philadelphia, San Francisco, Seattle

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EQUIPPED WITH WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

BRISTOL'S ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. **Waterbury, Conn.**

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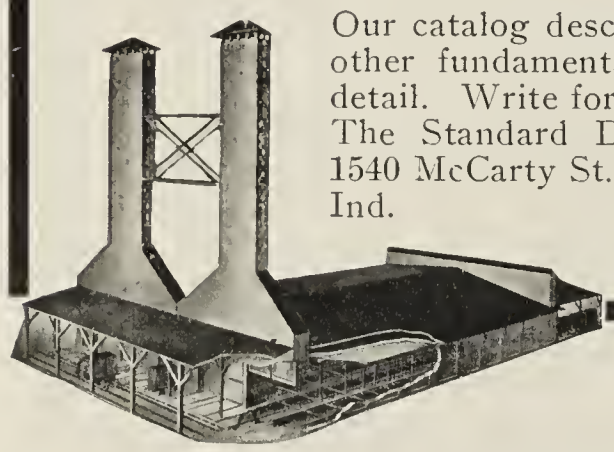


CONTROL

is the vital test of any brick-drying system. And right there is the reason why **all natures** of clays "look alike" to

The Standard Brick Drier

Control of the drying elements is absolute—yet very simple. So simple that any one man around the plant can give The Standard Drier all the attention it needs.



Our catalog describes this and other fundamental features in detail. Write for it. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Don't Let Another Day Go By

without writing for information about the Beighlee Pyrometer.

Coal prices have gone up. All man power prices are higher. It is your grim necessity to actually produce more ware—quicker and cheaper.

The Beighlee furnishes a way out, provides you with a means to reduce your fuel consumption, burn in a shorter time, and produce a superior grade of ware.



Better ware—at a lower cost. It can be done. Ask how.

Beighlee Electric Co.
Cleveland, Ohio
Herman A. Holz, Hudson Terminal Bldg., New York, Representative in New England States.

whose headquarters are in New York City. This material has been very popular in a good many localities, and the suburban district about New York has supplied a seemingly insatiable market for its sale.

The last of the brick burned late in January are being shipped from the yards of the Homestead (N. J.) Brick Company. The burning was not a large one, but it was sufficient to keep the yard running most of the winter, it being idle only thru February and part of March—an unprecedented condition in that locality. The yard will operate to capacity this season if conditions permit.

By authorizing an expenditure of $15,000,000 on a state road system and selecting Colonel George W. Goethals, builder of the Panama Canal, as state engineer to take charge of the work, New Jersey has launched a very extensive campaign in road building. Mr. Goethals has accepted the state position and will, in connection with his road work, direct other important engineering activities. Due to the tremendous amount of automobile traffic of both New York and Pennsylvania, the roads of this state are subjected to unusually trying conditions of service. It is hoped, in view of the many concrete failures that stand as monuments to the inability of that material to withstand the heavy traffic, that paving brick will be used in the construction of a permanent system of highways.

Wilson A. Philips, owner of the Philips Clay Products Company, Trenton, N. J., recently acquired an interest in the American Hollow Tile Company, which operates a large manufacturing plant between Highstown and Cranbury, N. J. The American Company has just increased the capacity of its plant by installing several thousand dollars worth of new machinery and is now producing upward of one hundred tons daily. The company is enjoying a very active business and is making shipments of hollow tile to various distant points, besides supplying the local demand. According to those connected with the company, this season bids fair to be a record one for the use of brick and hollow tile, and in anticipation of the heavy demand for its products, it will employ a largely increased force of workmen. One of the large orders recently booked by Mr. Philips calls for several million face and common brick to be used in the construction of a new plant being erected by the Westinghouse Lamp Works at Trenton.

New Mexico

The New Mexico Fire Brick Company, of Gallup, New Mexico, was recently given an order by the Mesa Verde Copper Company of Arizona, for $35,000 worth of brick. This is one of the largest contracts ever received by a brick manufacturing company in that state.

New York

The Aetna Brick Company, Crescent, N. Y., resumed operations on April 1. The concern has already contracted for its entire output of the next ten months, which amounts to 10,000,000 brick. All brick manufactured by this concern are shipped via the water route.

Delegates to the convention of the New York State Builders Supply Association, which opened on March 20th at Rochester, N. Y., were taken, during the second day of their gathering, on an inspection trip thru the Mandery yards of the American Clay and Cement Corporation of that city, with which E. J. Burke is associated.

North Carolina

The Pamlico (N. C.) Brick and Tile Company was recently incorporated to manufacture brick, tile and pottery.



with an authorized capital of $50,000 and subscribed capital of $12,000. The incorporators are: W. C. Faucett, Grimesland; W. H. Lodge, and W. H. Ellison of Washington.

A charter was recently issued by the secretary of state to the Duckworth Brick Company of Morgantown, Burke County, N. C. The capital stock of the new concern is placed at $100,000, $15,000 of which has been subscribed by E. D. Duckworth, E. D. Phifer, and others. The company will conduct a brick, tile, and building material business.

North Dakota

A great increase in business is anticipated by W. S. Russel, manager of the Dickinson (N. D.) Fire and Pressed Brick Company, whose plant began operations during the latter part of March after a thoro overhauling of all machinery. Several large orders for fire brick have been received by this company, some of which are coming from points as far distant as Missoula, Mont., and Manitoba, Canada.

Ohio

The Puritan Brick Company of Hamden, Ohio, which manufactures paving brick, has increased its authorized capital from $10,000 to $375,000. The concern contemplates extensive improvements and enlargements at the plant.

Emmet Howard, sales manager of the Claycraft Brick Company, Columbus, Ohio, made a complete inspection of the company's plant at Groveport recently. According to the officials of the company, the outlook for face brick is fairly bright and the only drawback is the lack of shipping facilities.

Charles Franks, sales manager of the Nelsonville (Ohio) Brick Company, reports some awakening in paving contracts. Bids were opened by the board of service of Columbus for several brick pavements but the contracts have not yet been awarded. Some lettings are advertised as taking place soon thruout Ohio. The car supply is bad and instead of box cars the company is using gondolas for shipping pavers.

Papers have been filed with the secretary of state reducing the authorized capital of the Columbus (Ohio) Brick and Terra Cotta Company from $300,000 to $165,000. The plant, located at Union Furnace, is now operated by L. D. Binyon and J. S. Hogan, well known brick men of Chicago. The entire output of the plant, which is manufacturing fire brick only, is taken in Chicago.

Prison-made brick will be used by the state of Ohio in the construction of two Perry County roads, for which the state contracted last year. State Highway Commissioner Cowen asked the state board of administration to furnish 2,500,000 brick for these improvements, and to have them ready for shipment by June 1. Nearly seven miles of roadway, constituting the first improvement on which prison-made brick will be used, are to be constructed with that shipment.

An indication of the tremendous demand for common brick is seen in the condition of the plants of the Barkwill-Farr Company. This firm, according to R. C. Mitchell, sales manager, is 25,000,000 brick behind in deliveries, and orders are still coming in. In other quarters the same proportion is reported, all of which goes to show that while the big building lockout may have hampered deliveries, it has had no affect upon orders.

The Blair Brick Company has been incorporated as a new concern, with a capital stock of $25,000, to take over the plant and business which have been operated by the J. M. Blair Brick Company, of Cincinnati, Ohio.



YOU CAN'T DO THIS

You can't get the kilns unloaded on time—You can't prevent the accumulation of demurrage on cars—You can't have satisfied hustling wheelers—

Unless You Have a Fleet of Invincibles

These wheelbarrows are perfectly balanced; when the load is on and the handles are lifted at least 90% of the weight is on the axle, the other 10% is on the hands, just enough to steady the wheeler. The axle is under the load, not at one end of it.

The Toronto Foundry and Machine Co.

Toronto, Ohio



The barrow slides if you want it to. The hind legs do not rip and catch on obstructions.



"SCANDINAVIA"

(Solid Woven Cotton Belt)

is the kind of belt that gets the preference from those clay-products manufacturers who are most particular about knowing the exact cost of operation in every detail.

"Scandinavia" always shows up so well when the manager looks over the cost figures that there never is any question as to the belt that will always have the preference.

"Sandinavia" is the belt for you to use for power transmission—elevating and conveying.

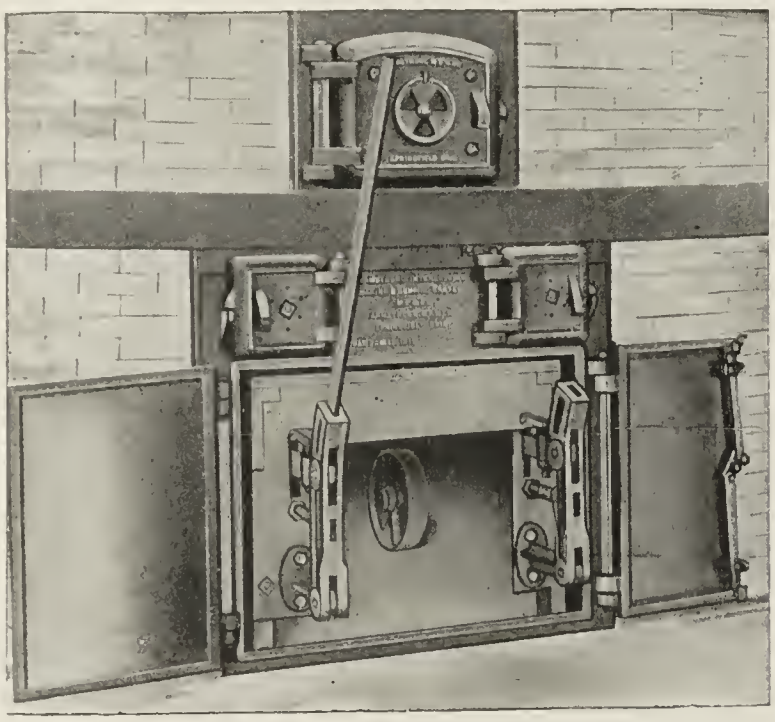
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Scandinavia Belting Co.

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Branches: Atlanta, Boston, Buffalo, Chicago, Cleveland, Easton, Pa., Pittsburgh, San Francisco, Los Angeles, Portland, Ore.

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Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

The old company has been in the hands of trustees for the benefit of its creditors, but its affairs have been straightened out and plans are under way for the resumption of active work at the plant, which has a capacity of 50,000 common brick a day.

D. C. Shorey, Jr., has become sole owner of the Shorey-Willis Brick and Supply Company, of Cincinnati, Ohio, by acquisition of the interest of W. H. Willis, who decided some time ago to re-enter the brokerage business, in which he was formerly engaged. Mr. Willis is now actively connected with the brokerage firm of Willis, Tubbs and Company, handling stocks and bonds. The Shorey-Willis Company is continuing to expand its business and Mr. Shorey reports excellent prospects for the spring season.

A good example of the increased use of brick pavements in northern Ohio, both in city and county, is furnished by the recent award of contracts for brick pavement in Cleveland. Thorofares to be paved with brick will be Lillian Court, Poe Avenue, Eddy Road, East 127th, East 129th and East 44th Streets, all of them being a part of the general improvement planned in connection with the $3,000,000 paving bond issue of last fall. Bids for three streets in Lakewood, the western suburb of Cleveland, are pending. Later this month the bids for Windfall Road will be considered by Cuyahoga County commissioners.

The Anders Shale Brick Company, Cincinnati, Ohio, is getting its plant in shape for capacity operations, the improvements already made including a new kiln which will increase the capacity of the plant to 20,000 hollow brick a day. During the winter, the plant manufactured but 10,000 brick a day, which took care of the limited requirements of local building and enabled some stock to be accumulated. Orders now in hand make it certain that the full capacity of the plant will be required during the entire spring and summer season, according to an officer of the company.

The Builders' and Traders' Exchange of Cincinnati, Ohio, is behind a campaign for the use in Cincinnati buildings of locally produced materials, so far as possible. The idea is of considerable interest to local brick and supply men for obvious reasons. The committee in charge, consisting of C. O. Daller, H. B. Yergason and B. J. Shine, believes that in many cases materials are bought outside of the city for no reason other than the not uncommon preference for an imported article, and suggests that wherever an equally meritorious article is produced in Cincinnati, it be specified by the architect as standard.

Paving brick interests of northern Ohio are launching a strenuous campaign for the use of brick paving on Euclid Avenue, Cleveland, Ohio, following the statement of City Engineer Hoffman that wood blocks are to be used. The part of Euclid Avenue affected is known as "Millionaire's Row," and is being widened in connection with the general re-paving program of Cleveland. Special emphasis is being laid by the paving brick interests upon the danger and menace of wood block pavements to horses. According to a member of the Humane Socicty, at least one hundred horses will be killed annually if the wood block pavement is used.

One of the results of the rapid increase in the price of paving brick is that road contracts not filled last summer or fall, for various reasons, will be losing ventures with the contractors, who figured the cost of their brick at the prices prevailing at that time. One instance,



reported from Lisbon, Ohio, is that those contractors who took the contract to pave the Lincoln Highway in that vicinity for about $20,000 a mile, covering a fourteen-foot brick road, have asked the commissioners to release them because of the increase in brick from $17 to $21 a thousand, as well as the increased price of other materials. The county commissioners were unable to meet the request, however, pointing out that the contract was awarded by the state highway department.

"Unless traffic conditions improve and the car supply becomes better, orders now on the books of the face brick manufacturers of Ohio will take the entire year to fill" said a well known Buckeye manufacturer recently. "In other words, taking the past three months as basic for my calculation, and if the amount shipped is not increased, all of the Ohio plants have sufficient orders to consume the output of the remaining nine months, as far as shipping goes. Most of the companies have gradually accumulated surplus stocks during the past few months because of the insufficient shipping facilities while orders are coming in about as usual for this time of the year. I understand the same condition obtains in the common brick field of Ohio that prevails in the face brick division, so the outlook is not of the most promising nature."

One of the most inexcusable of the many strikes which Cincinnati has had, especially in the building trades, is that which has for some time been hampering work on the new courthouse. It arose out of a dispute between the sheet-metal workers and the carpenters over the handling of certain work, and is called a question of jurisdiction on which the unions themselves do not agree. With no complaint whatever against the contractor, and no claim of a disagreement, the work has been virtually halted, waiting for the warring unions to get together on a question of minor importance. Union officials, including the national officers of the bricklayers' union, requested the revocation of the charter of the Cincinnati Building Trades Council because of the situation, but it is not probable that this action will be taken.

Movement to bring about a widening of the brick road between Cleveland, Ohio, and Akron, is now being conducted by the Cleveland and Akron Automobile Clubs. The tremendous increase in traffic, especially of automobiles, over this highway in the last year has made some drastic move necessary, according to officials of the Cleveland organization. Altho in some places the road is sixteen feet wide, its average width is but fourteen feet. The move is necessitated by the fact that many big business interests, failing to obtain satisfactory deliveries and shipments of merchandise via the railroads, owing to the car congestion, are now using automobile trucks—action which has resulted in making this important artery of traffic badly congested at all times. As an adjunct to the movement, the automobile clubs also are working for the construction of an entirely new road from Cleveland to Akron, to be diverted thru Northfield. Strong claims are being made for brick by the members and others in the automobile clubs, for the reason that the surface is ideal, under all conditions, and especially in wet or cold weather, when danger from skidding must be reckoned with if any other material is used.

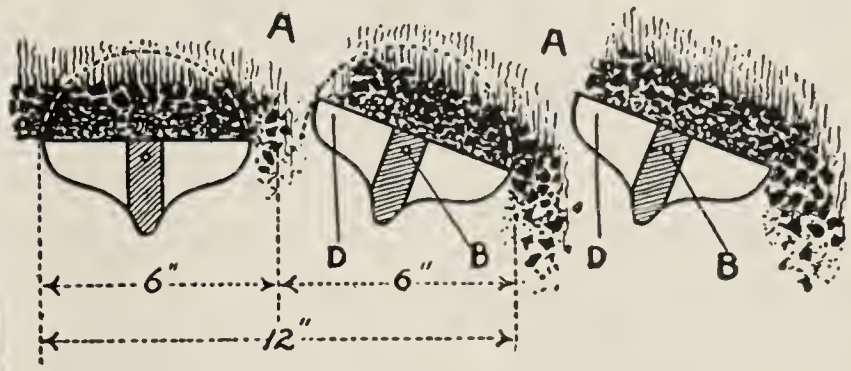
Oklahoma

The Muskogee (Okla) Vitrified Brick Company has just completed its new switch connection with the M. K. & T. Railway, one railroad being unable to furnish satisfactory shipping service for the company's large output. At present, the plant is manufacturing 1,700,000 common brick

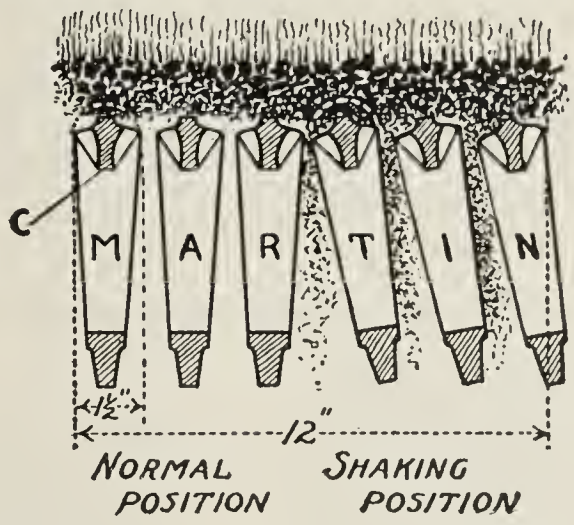
DUMPING MONEY

Substitute the word "*wasting*" for "*dumping*" and "*saving*" for "*rocking*"

"DUMPING" GRATE



MARTIN "ROCKING" GRATE



Any grate so built that it dumps the top of the fire into the ash-pit is wasteful and expensive.

The bars of a **WASTING** grate support at least six inches of fire; to clean such a fire the bars must be raised high enough to allow the ashes to slide into the pit (see upper illustration above).

Each Martin **SAVING** Grate bar carries but 1½ inches of fire; when you shake the Martin **SAVING** Grate you scrape the **bottom** of the fire bed; only that part of the fire which has been reduced to a complete ash can slip through the bars.

For that reason any grade of coal can be used; slack—mine-run—or screenings all burn equally well on the Martin **SAVING** Grate because the top of the fire remains just as the fireman spreads it.

Look again at the illustration above; do you see the opportunity for your fireman to leave the fingers of a **WASTING** grate bar sticking up into the fire bed? They will burn off if left in this position; and a new bar must be installed.

The Martin **SAVING** Grate bar (lower) has no fingers; it hangs pendulum fashion, **with the weight at the bottom.**

The fireman can release the shaker handle at any point and the grate will return to its normal position.

Just such points as these make the Martin **SAVING** Grate the most economical, trouble-proof grate you can buy.

And as you realize the importance of saving money in the hidden places of your factory, you will want to know more about such points of Boiler Room Economy as we are able to prove by the hundreds of signed statements that we have received from satisfied users of Martin **SAVING** Grates.

We'll send you our complete literature in addition to signed statements from Martin Grate users.

Martin Grate Company

347 South Dearborn St., CHICAGO, ILL.



BURNING FACTS

are what you get when you answer one of our ads,—what the HOOK DOWN DRAFT SYSTEM has done and is doing in plants similar to yours, and an estimate of the **saving** that can be made in **your own plant,** also an estimate of the cost of remodeling your old kilns to this system, or of building new to size and capacity YOU specify.

It is a FACT that this system can save fuel and time for YOU with an improvement in quality of ware. When you see the simple yet different distributing system that accomplishes these results, you will understand how it is done.

This system has been tested by prominent clayworkers in the same sane way that you would test it,—names and all data yours for the asking.

Our first letter will be of personal interest if you tell us number and kind of kilns you now have, kind of fuel, clay and ware, present burning time and fuel consumption.

PLANS, Kilns Complete, Grate Bars Bands, Accessories

HOOK PATENT KILN COMPANY

HIGH AND SPRING STS.
COLUMBUS, OHIO

and 400,000 "Muskogee Rug" brick a month and is being operated at an increased capacity to catch up with the orders in hand, which call for several million brick. F. C. Nicholson, of Iola, Kan., is president and general manager of the Muskogee Vitrified Brick Company, and is also president and general manager of the Union Brick Company, of Iola, Kan. The combined capacity of the two plants managed by Mr. Nicholson amounts to 4,000,000 brick a month.

Oregon

The A. G. Stevens Brick and Tile Company, Enterprise, Ore., is planning to construct a clay products manufacturing plant at Gladstone, Ore., at which it will make five different styles of brick.

The Warrenton (Ore.) Clay Products Company opened its plant on Saturday, April 7, with elaborate ceremonies, the governor of the state going from Salem to be among those present. A banquet served in the factory on the work tables and covered machines was a feature of the day's program.

Pennsylvania

W. H. Brun, of Hollidaysburg, Pa., recently secured the work of building a brick pavement for the county officials at Evensburg, Pa., at a cost of $48,000.

John S. Sell, county controller, of Greensburg, Pa., will soon award contracts for about eleven miles of brick paving, the cost of which will aggregate approximately $220,000.

A new record was set by the Mount Union (Pa.) plant of the Harbison-Walker Refractories Company recently when it manufactured 280,000 fire brick in twelve hours. Four new kilns are in process of construction at this plant.

It is reported that a new fire brick plant and fifty dwelling houses will be erected by the Harbison-Walker Refractories Company of Pittsburgh, Pa., about two miles from Surveyor's Run, near Shawsville, Pa.

Several large Pittsburgh (Pa.) contracts were placed in the past fortnight with concerns outside the Pittsburgh district. One job, amounting to $265,000, was given to a Chicago company. However, the brick will come from western Pennsylvania.

Work has been started on the construction of the plant of the newly incorporated Lehigh Brick Company, Allentown, Pa. The plant, which is to be located on a tract known as the Appel farm in Salisbury Township, about two miles southwest of Allentown, is to have a daily capacity of at least 50,000 common brick, and will also manufacture a considerable amount of hollow tile. Sidings and bridges have already been built and work is now underway on the construction of the company's kilns.

According to a recent report, the Haw Brick Company, of Johnstown, Pa., which recently completed a million dollar merger and which will operate in four counties in central Pennsylvania, has purchased from the Zortman Lumber Company a large tract of land in the Tuscorona Mountains, which is reputed to contain rich deposits of ganister rock. The development of present plans will mean the construction of a large plant at this point in the near future.

The Montgomery Shale Brick Company, whose headquarters are located in the Builders' Exchange, Philadelphia, Pa., will soon have its plant at Westpoint, Pa., in a position to manufacture 6,000,000 brick annually, if pres-



ent plans materialize. Four twenty-four-foot down-draft kilns and one rectangular kiln with a capacity of 200,000 brick are to be constructed. The output of the plant will be restricted to rough-texture face brick and vitrified sewer brick, the machinery and equipment for which has already been received.

According to a recent report, the Paxton Brick Company, whose officers are located in the First National Bank Building, Middleburg, Pa., is operating its plant at Paxtonville, two miles west of Middleburg, day and night. One hundred and fifty men are employed and the company has not been able during the last two months to meet the demand for paving and building brick. J. C. Fowler, who was formerly connected with the Watsontown (Pa.) Brick Company, is manager of the Paxton Company and W. H. Hill is superintendent. According to present plans, the plant is to be further enlarged and one hundred more men added to the force.

Painting Motor Trucks

In view of the advertising value which is generally believed to attach to motor delivery equipment, a great amount of attention is being given to the painting of signs on these outfits. This is a good thing, as it has led to a careful study of color combinations and to the presentation of more effective signs for the attention of the public.

That such care is needed is shown by occasional use of a combination which is hard to read. For instance, the writer recently saw a brick concern's truck, on the sides of which were painted signs in the form of red, white and blue panels, with black lettering upon them. It was interesting to note that the letters showed up nicely on the red and white, but were almost indecipherable on the blue. Inasmuch as the brick company was using this sign for the purpose of announcing the character of its business and giving its address and telephone number, this was unfortunate.

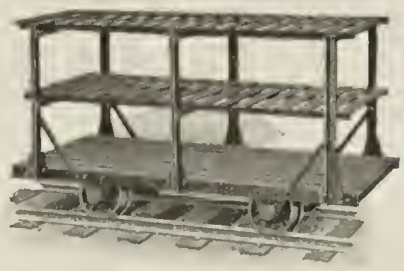
Anything worth doing at all is worth doing well, and while this may seem like a small point, it should be given consideration, and a sign in which all of the reading matter is perfectly legible should be used.

Brick a Mark of Permanence

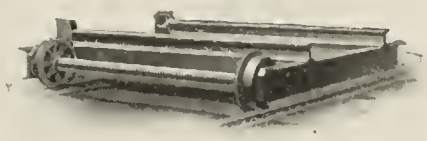
A feature of brick construction which appeals to everybody is that it is the sign of permanence. Nothing of a transitory or temporary character is associated with this material. The boom town goes up with buildings of frame materials hastily thrown together. When the town is established, and is a fixture on the map, it has a fire, and is rebuilt with brick. That is the usual story.

This even applies to smokestacks. The erection of a brick stack gives an air of solidity and substance to a plant that is helpful in advertising the fact that it is there to stay. Incidentally, the effect, architecturally, leaves little to be desired. There is something impressive about it that seems to add a note of finality and completeness to the entire proposition.

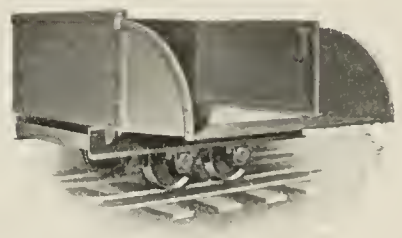
This has been commented on recently in connection with the big building of the Chicago Arena, at Broadway and Thorndale, on the North Side of the Windy City. The big structure, which is given over to ice skating, is built of brick, while the lofty stack is of the same material. The project is new, and being an amusement venture, may have its ups and downs, but that imposing smokestack tells a story of permanence as nothing else could.



If It's a Car—
We Build It

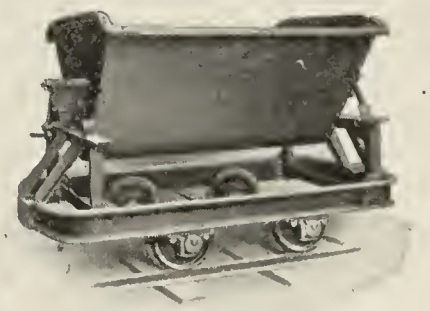


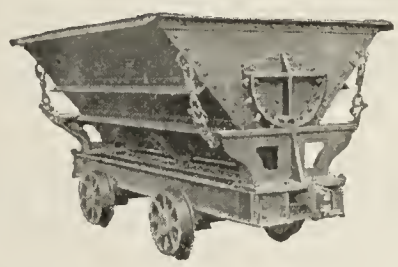
Clay and
Dryer Cars

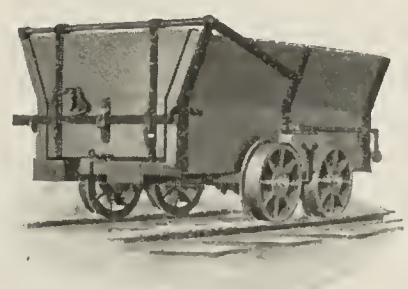


CARS
"Of Quality."

A Car for
Every
Purpose







Our plant is the largest in the world devoted exclusively to the manufacturing of

Cars

The Watt Mining
Car Wheel Co.
Barnesville, Ohio, U. S. A.



Where ARE You Going to Get MEN?

Last year you were in constant competition with munition factories, harvesting and countless other industries that paid higher wages—attracting your workers—causing you unknown losses due to your inability to get along without MEN.

This year a new competitor is asking for 2,000,000 men under arms, and countless thousands in other Government work—UNCLE SAM wants MEN—and you don't get them.

The Automatic Electric Elevating Platform Truck presents to you—your way out, and you had best grab it **now.**

It actually saves MEN, it unloads kilns quicker, better and cheaper.

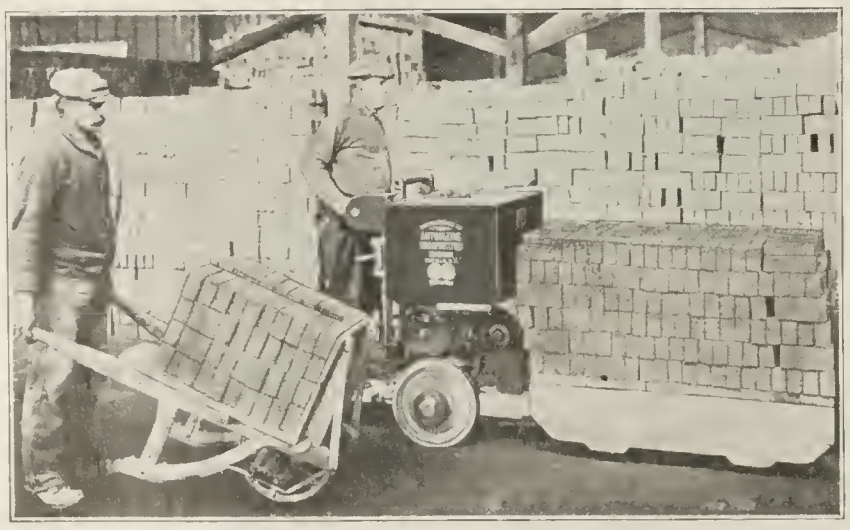
It hauls more then a man, it goes faster than a man, it goes from kiln to pile oftener than a man, it goes to work **every** morning at 6:30—always.

It saves MEN.

The Automatic Transportation Co.

2933-2965 Main St., Buffalo, N. Y.

Pioneer manufacturers of Electric Storage Battery Trucks, and the only Truck Manufacturers awarded Gold Medal at San Francisco Exposition



CO-OPERATION *between* EMPLOYE *and* EMPLOYER *the* KEY *to* INDUSTRIAL PROGRESS

(*Continued from Page* 741)

per member, payable one-half on each pay-day thru a deduction by the What Cheer Clay Products Company from the pay due to each member, and the deposit by the company of the amount so collected to the order of the association.

The board of trustees may, if they consider there are not sufficient funds in the treasury, pass an assessment or assessments, but they shall not levy more than one assessment in any calendar month.

Members shall be admitted to the association immediately on their becoming employes of the company, and shall pay dues as from the time of the last pay-day. They shall not be eligible to receive sick benefits until they have been members for a period of two months.

No donations or subscriptions shall be solicited from the members.

Article V. Funds Furnished by the What Cheer Clay Products Company

The What Cheer Clay Products Company will, upon the regular formation of this association and the proper adoption of the constitution and by-laws of the association, guarantee to deposit the amounts deducted from the pay of each member, together with a sum equal to fifty per cent of this amount additional, promptly on each pay-day in the bank selected by the directors. In order to insure sufficient funds for the immediate success of the association the company will make an advance payment of two hundred and fifty dollars with the first deposit made, this amount to be the only payment made by the company until the deposits of the members shall equal the sum of five hundred dollars.

Article VI. Officers

The officers of this association shall be a president, vice president, secretary-treasurer, a board of trustees, consisting of three members, one of whom shall be the general manager of the company, and a board of directors. A majority of the directors will constitute a quorum for all matters connected with the social side of the association. All matters relating to finance and sick benefits will be in the hands of the board of trustees.

President. The president shall appoint all committees, shall preside at all meetings of the association and of the directors, and shall perform such other duties as ordinarily pertain to his office. The president shall be an ex-officio member of all standing committees.

Vice President. The vice president shall, in the absence of the president, perform the duties pertaining to that office.

Secretary-Treasurer. The secretary-treasurer shall keep a record of the minutes of each meeting; he shall send out notices of meetings; keep an accurate record of all moneys received and disbursed by the association. He shall attend to all correspondence, keep a record of attendance at all special and business meetings, and perform such other duties as ordinarily pertain to these offices.

Board of Trustees. The board of trustees shall have entire charge of the funds of the association, and shall counter-



sign all checks. They shall meet whenever necessary, and no record of their meetings shall be kept.

Board of Directors. The president, vice president, secretary-treasurer, and the board of trustees shall constitute the board of directors.

Appeals. There shall be no appeals from any action taken by the board of trustees, tho a reconsideration of their action at any time may be asked. Appeals from the action of the board of directors may be made at any regular or special meeting provided that notice of such intention to appeal be given in the notice calling such meeting.

Election. All officers and trustees, except as before provided, shall be elected at the annual meeting to be held in the clubrooms of the association on the third Wednesday in January of each year. In the event of the general manager of the company being unable to attend any meeting of the board of trustees, he shall be authorized to appoint a deputy to take his place at such meeting, and to countersign checks in his place.

Article VII. Abandonment

Should the company abandon its plant or cease business, the funds on hand belonging to the association shall be distributed one-third to the company and the remaining two-thirds equally among the members in good standing at the time of abandonment.

Article VIII. Amendments

This constitution may be amended at any regular meeting, not less than two-fifths of the members being present, by a two-thirds vote of all members present, provided that such proposed amendment shall have been posted in the clubrooms and in a prominent place at the plant at least ten days before such meeting.

There shall be no amendment to the article making the general manager of the plant a member of the board of trustees.

BY-LAWS

Article I. Meetings

The clubrooms of this association shall be open daily (except Sundays) from 9 A. M. until 10 o'clock P. M., except on Saturdays when it shall be open until 11 o'clock P. M. No member who is able to work, unless prevented by cause at the plant, such as a breakdown or like, and only then in the event of there being no other work offered to him, shall have the right to use the rooms until after working hours. Members in receipt of sick benefits, who are permitted to leave their homes, are permitted the use of the rooms after 9 A. M. Wives of members may have the use of the rooms after 1 P. M. and at other times upon request of the house committee.

Special meetings shall be held upon call by the president or the board of directors or by any five members upon written notice to the secretary at least three days in advance of such meeting.

Regular meetings of the board of directors shall be held on the first Monday of each month at 8 P. M. Members may be admitted to these meetings upon a majority vote of the directors present, but shall have no part in the discussions except upon request of the board.

The annual meeting of the association shall be on the third Wednesday in January of each year.

The place of all meetings, except of the board of trustees, shall be in the clubrooms of the association, but meetings of the board of directors may be held elsewhere upon call of the president.

Article II. Voting

All votes on the election of officers and expulsion of members shall be by ballot.

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE
R. D. WOOD
AND COMPANY
Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.



THE SAGINAW GRINDING PAN

For Wet or Dry Use

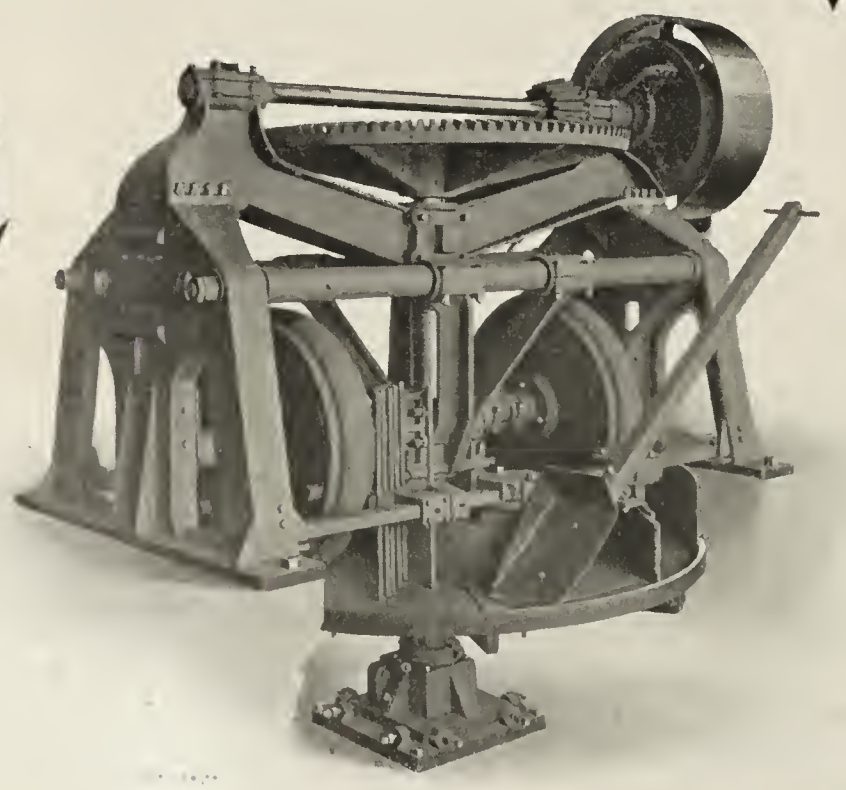
was designed especially for the hardest kind of service a grinding pan has to endure. There is no kind of a brick plant where the grinding difficulties are more trying than in Sand Lime Brick plants, and the Saginaw Pan was designed because it was impossible to get a satisfactory pan anywhere else.

The lower end of the upright shaft has a **hardened steel toe** of large area, secured in a taper hole in end of shaft, running on a bronze step. All shafts and bearings are of ample size and the lubrication system is perfect.

If you are looking for **real pan satisfaction,** ask us about the SAGINAW.

Jackson & Church Co.
Saginaw, Michigan

Also builders of the Saginaw Line of Sand Lime Brick Machinery



Voting on other matters may be by the raising of one hand or by ballot, at the discretion of the presiding officer.

Article III. Committees

The president shall appoint the following standing committees:

House Commitee, consisting of not less than three and not more than five members.

Entertainment Committee, consisting of not less than three and not more than five members.

The president may also appoint other committees, such as Visiting Committee, Nominating Committee, etc., as may in his opinion be required. All committees so appointed shall transact such business as is delegated to them by the president and board of directors. No committee shall take final action until a report has been made, except by special vote of the board of directors or the members.

House Committee. The house committee shall have the entire charge of the club rooms, and shall with the board of directors be the only members of the association to have keys to the rooms. They shall be responsible for the maintenance of order while the rooms are open, for the proper cleaning of the rooms and halls except where janitor service is given. They shall see that proper care is taken of the furnishings and furniture of the rooms, and that all lights are extinguished at closing time. They shall have authority to suspend members from the use of the rooms for a period not to exceed the interval between the exercise of such authority and the next meeting of the board of directors. One or more members of this committee will be in charge of the rooms every night and will be responsible to their closing at the proper time.

The house committee may delegate their authority during the day to any member eligible to use the rooms, and such member shall be vested with all the powers and authority of the house committee while serving in such capacity.

Entertainment Committee. The entertainment committee shall prepare and arrange programs for special meetings; they shall prepare and arrange such social functions as may be directed by the board of directors, and help to carry such meeting to a successful conclusion.

Visiting Committee. The visiting committee, if one be appointed, shall visit members in receipt of sick benefits who are confined to their homes. They shall try to arrange for other members calling on those who cannot get out from their homes, and shall try to promote social calls between the families of the members.

Nominating Committee. The nominating committee shall report nominations for officers and for directors of the association and shall report at the annual meeting and prior to the election of officers and directors.

Other Committees. Such other committees as are appointed shall consist of not less than three members. (A committee on public affairs is recommended as one of the standing committees.)

Article IV. Politics

This association shall at no time go on record as approving or disapproving any legislation of a state or national character. It shall be interested in the welfare of the city of What Cheer, and shall co-operate in every way possible, but party politics shall have no place in the activities of the association.

The entertainment committee may arrange for discussions of political matters, and invite candidates for and holders of offices in city, county, state and national governments, as a part of their work, but no action shall be taken after any discussion or speech which can be constructed as plac ing the association on record on any measure.



Article V. Finances

All funds of the association shall be deposited in some bank to be named by the board of directors.

Bills shall be paid only by checks drawn by the treasurer and countersigned by the members of the board of trustees.

A report shall be made by the treasurer at any time when called for by the board of trustees, and an annual report shall be made to the members at the annual meeting.

Article VI. Sick Benefits

Members of this association, unable to work on account of sickness, shall upon furnishing a certificate from one of the association doctors, provided that such sickness is of one week duration, receive sick benefits in the sum of five dollars per week, for a period of sickness not to exceed twenty weeks in any one year. Members suffering from chronic diseases shall be eligible to sick benefits only when the sickness is not a result of such chronic disease.

A member meeting with an accident while coming to or returning home from the plant, or while in the plant during working hours, shall receive sick benefits while unable to work from such injury, provided that such sickness is of one week duration, said benefit to begin at once, except that should the accident be covered by the company's liability insurance, the members shall receive only two weeks' sick benefits, the remaining period of his illness being taken care of by the insurance company.

No member shall receive more than twenty weeks of sick benefits in one year.

No member shall receive sick pay if he contracts such disease while violating any laws, or the rules of the company, relating to public safety; or during an altercation, or while fighting or wrestling; or in case of any disability arising from venereal disease, from the use of or while under the influence of intoxicating liquor, opium or narcotic drugs.

Two association doctors shall be elected for a period of one year at each annual meeting, and their duties shall begin immediately after appointment.

Any member failing to pay his doctor's bill within a reasonable time after his recovery from any sickness shall be suspended from the association until his bill is settled, or for such period as the trustees may decide.

The doctors elected as the association doctors shall be furnished with books of certificate blanks with stubs, numbered consecutively. A certificate shall be issued at the end of each week's sickness, which certificate shall be handed to the secretary by the member or some one of his family, and turned over by the secretary to the trustees for their attention. At the end of a period of sickness the doctor shall issue a health certificate and the sick benefit shall cease.

The secretary shall keep a book in which all certificates so issued shall be entered together with the weekly sick benefit paid thereon, and this shall be accessible to the directors and trustees at any time upon call.

Article VIII. Pay of Officers

No officer or commiteeman except the secretary-treasurer shall receive any salary, and it shall be upon vote of the members whether the secretary-treasurer receive pay or not.

Article IX. Amendments

These by-laws may be amended at any regular meeting of the association, except that part making the general manager a member of the board of trustees, not less than two-fifths of the members being present, provided, however, that such proposed amendment shall be read and offered in the previous regular meeting.

Article X. Notices

All notices shall be posted on a bulletin board in the club rooms, and in a prominent place at the plant, but the board of directors may authorize the secretary to mail notices.



The Mason City Brick and Tile Co. of Mason City, Iowa, are using the one

Thew Automatic Shovel

shown here, to supply shale for their five plants. And it is doing this work at an astonishingly low cost, particularly considering the hard conditions imposed.

In the cut above a two-foot ledge of rock shows above the dipper. This ledge is 24 feet above the rails on which the shovel stands—yet the shovel has had no difficulty in pulling out this rock, depositing it in the rear as the shovel advances into the bank. The cut below shows the hard strata of shale to be removed.

Nearly 400 clay plants know what wonderfully efficient work the THEW shovel does. Ask for Circular 27-C and find out for yourself.

The Thew Automatic Shovel Co.
Lorain, Ohio

Gasoline —— Steam —— Electric





BETTER KILN FIREMEN—

Does that sound interesting to you?

Yes, it does—and it can be accomplished with Canton Shaking Kiln Grates. With these you dispose of one of your troublous summer problems.

Better, more efficient, contented firemen will result—because they can do better work and "do it easier" with Canton Grates.

Note that again—"Do it easier," for practically all of the rough, sweaty, back-breaking labor of cleaning and clinkering is eliminated.

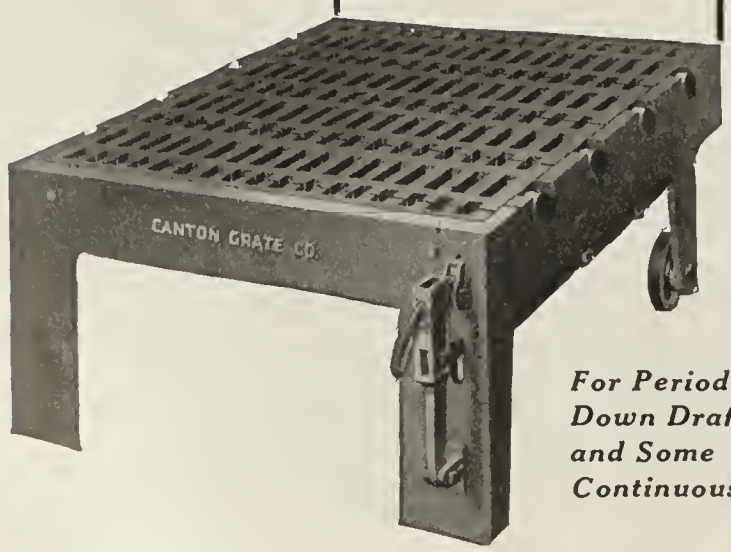
Fires are controlled at will, the full twelve hours of each fireman's shift; better ware results, less coal is consumed, less time to burn is required—and it is all done "easier."

We have these grates in successful operation in all kinds of plants, where they are producing Better Firemen, better ware at less cost.

Just ask how.

The Canton Grate Co.
1706 Woodland Ave.
Canton, Ohio

Southern Representative:
McBurney & Jones
Efficiency Engineers
829 Trust Co. of Ga. Bldg.
Atlanta, Ga.



For Periodical Down Draft and Some Continuous Kilns

The Home of "Pork and—" Utensils

Three things are necessary to make Boston baked beans what they should be—the beans, the baking and the bean pot.

The bean pot, to be a genuine, old-fashioned bean pot, should come from Peabody, Mass. In fact there is hardly a bean pot used in Boston, or New England for that matter, which is not Peabody-made. Since revolutionary days the Peabody potteries have been famous and today there are several potteries in active operation in that city—the youngest city in the state, the town having taken on the dignity of a city form of government on January 1st, 1917. At the time of the battle of Lexington twenty-one men were engaged in the pottery business in Peabody, of whom twelve answered the call to arms. Two of them were killed in the first clash of arms.

Until 1840 pots used for baking beans were shaped like plum pudding cans—straight-sided affairs—but about 1840 the present style of bean pot began to come into existence, and from that day to this, Peabody has been the home of the bean pot industry. At one time there were no less than fifty-nine potteries in operation in Peabody, of which a large part of the output was bean pots. Several of these original potteries still exist.

Discovers Jersey Clays Will Make Pencils

That New Jersey clay is being used in the manufacture of lead pencils, whereas up to the opening of the European war only German clays were used for this purpose, is the statement made following a survey recently completed in the state. It was also announced that, as a result of the new clay survey and a series of tests just completed in New Jersey, that clays found in several sections are, in a number of instances, replacing those from other districts outside the state.

Mixtures of New Jersey clays are being made with a view toward their being used as a substitute for the famous Klingenberg clay of Germany, which, until the opening of the war, was largely imported for the manufacture of graphite crucibles. As a further result of the above mentioned work, certain clays have been recommended to dealers and users as especially suitable for the manufacture of saggers and others as being available in making abrasive wheels.

The survey was started in September, 1915, by the New Jersey Department of Conservation and Development and the Department of Ceramics at Rutgers, New Brunswick, working in co-operation. The survey is supplemental to those made in 1878 and 1904. Samuel Sharkey was the clay expert in charge of the work until June, 1915, and since that time it has progressed under the direction of Mr. Gieger.

New Jersey has many clay deposits of commercial value, says the report. They are principally in the Woodbridge district of Middlesex county, in Mercer county south of Trenton, and at places along the Atlantic coast, such as Keyport, Cliffwood, Matawan, and so forth. Samples of the various clays were collected and experiments and tests made, including firing at several different temperatures in the laboratory and in potteries.

That the expense of the survey to New Jersey is justified is indicated by the increased use of the clays found in the state, coming as a result of the tests. The work will be continued as rapidly as the funds available permit.



MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

To Assist in Expansion Work

There has long been need in the clay-products industry for some reliable investment house to specialize in the issuance and sale of the securities of clay-products companies. Managers of these plants are often confronted with the possibilities offered if there could be legitimate expansion and improvements, but the money for use in this connection does not seem to be immediately available.

There has never been, unfortunately, the respect for the clay-products industry among bankers and moneyed interests that there should be, particularly when it is taken into consideration that amongst all minerals in the United States clay products rank third in the value of production.

It has remained for F. W. Morgan and Company, 1319 First National Bank Building, Chicago, to be the first of all reliable banking and investment houses to see the big possibilities offered for the ready sale of investment bonds issued as first mortgage on such clay plants as could readily offer, thru their assets, the kind of security the public demands when making investments.

F. W. Morgan and Company has been instrumental in assisting many well-known clay plants in the development of their enterprises, among these being the Clay Products Company of Brazil, Ind.; Abingdon Clay Company, Abingdon, Ill.; Postville Clay Products Company, Postville, Iowa; Whitewater Brick and Tile Company, Whitewater, Wis.; Western Shale Products Company, Fort Scott, Kan.; Dennison Clay Company, Dennison, Ohio, and others.

The clay-products industry is to be congratulated on having a firm like F. W. Morgan and Company to assist in expansion and development work and they welcome an opportunity to have their clay experts look into the merits of any proposition of a worthy nature that seeks greater development.

* * *

Better Night-Men

According to a letter received by Hardinge Bros., a clay-products firm in Iowa say that their watchman's clock is the "best buy" that they ever made.

In effect they feel that they bought something for nothing, for the lower insurance rate pays for the installation in one year, and in addition they have the advantages of constant protection by an efficient watchman. Their letter follows:

"We are in receipt of your letter of the 3rd inst., and note your inquiry as to our system of using the Watchman's clock, which we purchased from Hardinge Bros.

"While we are very glad to impart any knowledge or experience we may have, to the balance of the clayworking fraternity, we don't like to 'break into print.' In case you publish any of this, please do not use our name.

"Our reason for buying a clock was that we could reduce the base rate of our insurance five per cent. It happened that the second night we had this clock in operation, our watchman visited the barn, and found a horse about dead with the colic; by rousing out the stable foreman at once, and getting a doctor, they managed to save the horse. The price of this horse was equal to about five clocks, consequently, we figure that we are very much ahead on the clock business now. We do not pay any more wages to our night man than we did before we bought this clock, and we are ahead one horse already, and the clock has only been in operation about a month.

"As long as the cost for labor is no more, and as long as the reduction in insurance is going to pay for our clock in less than a year, we feel that we have got in on a proposition where there is everything to gain and nothing to lose,

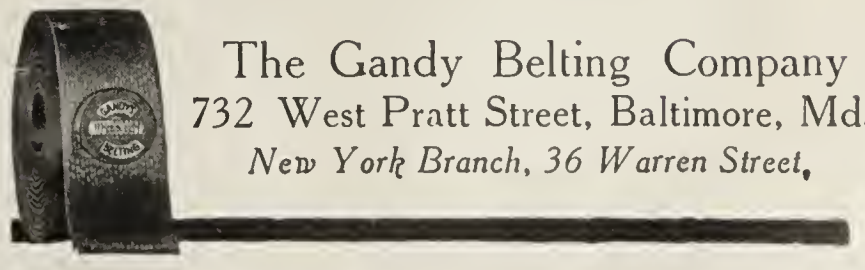
GANDY Belts

withstand

steam, water, oils, grease, dust—they withstand the elements that so quickly ruin *ordinary* belts. For most purposes except very small pulleys at very high speeds, the Gandy Belt will give longer and more economical service.

Gandy Belts hug the pulley *tightly*—transmit the *Maximum* power—without *slip*.

Gandy Belts in all kinds of service and under the most trying conditions—live up to their remarkable thirty-nine year reputation. Take advantage of our service department. We will gladly advise you—just how you can use Gandy Belts to your advantage. There is no obligation. Write today.



The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street,



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

as it certainly does no harm to keep our night men up and going.

"After we resume operations in the spring, we will have to purchase one more clock. We operate a large continuous kiln, and the night firemen have been in the habit of sleeping nights, and throwing in heavy fires to make up for lost time, with the usual result, namely, overburned brick in the bottom of the kiln. Whenever the writer visits the plant at night, and catches a fireman sleeping, we 'fire him.' However, all firemen are more or less alike, and all are human. If you put a man at a task, and do not have a check on him, he will naturally get careless. We are going to give these fellows a clock, with instructions to punch it every half hour, and are basing our hopes of success on the assumption that as long as a man is awake, and forced to move around, that he will in all probability do his work to relieve himself of monotony, if nothing else.

"In connection with the installation of our watchman's clock, we sort of woke up to the fact that we could profitably install some other inexpensive devices for keeping a check on our night operations; the first of these has been a recording steam gauge for our dryer. We have not had an opportunity to test this for results, but it will be gratifying to know that our dryers have had the amount of heat in them that we intend they should have."

Full information regarding the clock systems can be obtained from Hardinge Bros., Inc., 1760 Berteau Avenue, Chicago, Ill.

* * *

Clay Storage

Down in the Ohio valley it is customary to weather, in three great piles, the fire clay used. The plan is to load to one pile, and use from the second pile while the third pile is weathering.

In some instances it is a profitable proposition to re-win the clay from the piles by the aid of clam shell buckets, The Globe Brick Company being one concern using this method with splendid results.

Another use for clam shells that is finding special favor among the larger factories, is in handling coal at cars and storage piles.

The low operating cost and the elimination of men required to do the work in other ways are the two strong appeals made for clam shell buckets.

The Lakewood Engineering Company of Cleveland, Ohio, will send complete and accurate details to any one seeking information on buckets, and dryer and dump cars.

* * *

More Work for the Motor Truck

Cities troubled in keeping their streets open to traffic following heavy snow storms may profit by the example of Philadelphia, where a way has been found to quickly remove all snow from the streets no matter how severe the storm. This work is accomplished by means of a fleet of twenty to thirty White five-ton motor trucks, which for the greater part



Philadelphia Uses a Fleet of White Trucks to Clean its Streets After Heavy Snow Storms

SAY "I SAW IT IN" BRICK AND CLAY RECORD

operate in fleet formation and clean the pavements as free from snow as if they had been swept with brooms.

The front frames of the trucks are equipped with special heavy steel plows which scrape all the snow from the pavement and pile it against the curbing. These plows were designed especially for snow removal work and are 10 feet long and 16 inches high. They are operated by a steering wheel similar to the steering wheel on the truck and are adjustable to any kind of a pavement or road. The driver can raise or lower the blade when crossing street-car tracks or manholes and may also set it to any desired angle.

After the snow has been removed to the gutters another fleet of White five-ton trucks, built with power dumping bodies, collect it and dump it into the nearest manhole.

Early in December the plows worked a suburb of Philadelphia, cleaning up a nine-inch snowfall. In places the drifts were higher than the radiators of the trucks.

Second Hand Machinery

It is sometimes possible to select second-hand or used equipment that will give splendid and satisfactory service.

Frequently a steam shovel or dinkey engine has been used on some contracting job but a few months, before completion of the operation and consequent sale of equipment.

Clapp, Norstrom & Riley of 12 and 14 South Canal Street, Chicago, Ill., have a great list of the above and similar equipment.

Enthusiastic Over Underwood System

There is nothing more convincing than concrete evidence of the practical application of a product or system when one is considering its use. This is particularly true if the evidence submitted comes unsolicited from an enthusiastic user.

An instance of this kind has recently occurred in connection with the Underwood Producer Gas Burning System, which was recently installed at the plant of Whitewater Brick and Tile Company, Whitewater, Wis. John C. Stier, secretary and treasurer of the Whitewater company, was prompted to write the letter here below after the test burn of the Underwood System showed such wonderful results.

"Since making your test burn and staying well within the terms of your contract, it is a pleasure to me to indorse this method of using Producer Gas perfected by Mr. Underwood, to be used and applied to periodic kilns for the burning of all kinds of clay products. And I am sure that upon close investigation, the investigator will find many things commendable in this wonderful system. A few of them, are, ease of manipulation of the gas and air valves, producing any desired effect as to color the clay may be heir to; also any temperature may be reached with ease.

"The water smoking period is reduced to a minimum, the gas enters the kiln under pressure from every burner, forcing its way thru the ware, and can be applied as fast as the ware will permit.

We have water smoked a kiln and completed the burn in fifty-six hours and good ware at that, and on twenty-one tons of coal. The kiln contained 118 tons of ware or drain tile.

"We have used two kinds of soft coal—Franklin Co., Illinois, and Clinton Co., 4th Vein Indiana in a nut size.

"After the kiln is finished we draw off our waste heat free from obnoxious gases and sulphur that would otherwise scum the ware and attack the metal in our dryer cars, and penetrate our factory building.

"The Underwood System, in our estimation, is the best method known to mankind for the burning of clay products. We will gladly answer any inquiries regarding it."

Keep Your Boilers Clean

Preparedness for the unprecedented season ahead should not confine itself entirely to the machine room—to the operation of the pugmill, or cutting machine, or dryer, nor should it mean entirely the successful burning of a product after it is shaped and dried—it should extend farther and reach out into the boiler room, the source of the power that keeps your machines operating.

You will be better able to cope with the heavy demand the dawning season will bring for your products if you insure yourself against boiler trouble and consequent shutdowns by keeping your boiler and tubes free from scale.

By so doing you will not only insure continued operation of your plant, as far as the boiler room is concerned, but you will also materially reduce the amount of coal that you are now using to fire your boilers.



When a certain manufacturer bought his belts, the salesman told him to "run them at just the right tension." So once a month every belt was tested, and if not tight enough it was taken up, this work being done on Sundays and holidays, at "time-and-a-half."

But this made his friction load high. Bearings required too much oil, and when his belts slipped, men and machines had to stand idle until they were taken up. So finally they used belt dressings, rosin, soap or "a little castor oil" to stop the slipping, and now his belts give him more constant trouble than anything else in the plant.

There is another man in his town whose belts are old. He hasn't tried the tension for many years because there isn't any tension. They run easy or slack, and when called upon for extra duty they respond cheerfully.

For this man has long since learned the CLING-SURFACE way. His belts never slip, even when running heavy, and the friction load is very small.

About once a month or oftener, depending upon how long the belt has been treated, one of his men takes a stick with a rag wrapped around one end, and dipping it in the CLING-SURFACE he places it against the face of a belt, passing it across until a very light stain appears on the pulley faces. Then he stops: that belt is trouble-proof.

Simple, isn't it? Yet the greenest workman can apply the new semi-liquid "easy-to-use" CLING-SURFACE safely, economically and correctly.

Instead of tying up the shop with "belt trouble," wearing out men and equipment, and having overtime charges to meet, ONE MAN, with a bucket of CLING-SURFACE, treats the belts. Oil, coal and time is saved, more power is delivered, and the drives become cheerful workers instead of disagreeable kickers in your factory.

Let us prescribe for YOUR drives: our service is free, CLING-SURFACE is guaranteed, and we have a plan 10,000 firms have found successful.

Remember, use CLING-SURFACE and you won't need belt dressings.



CLING-SURFACE CO.
1029 Niagara Street
Buffalo New York

Copyright, 1917, by Cling-Surface Co.



Owners in the Brick and Clay Business

Find that no matter the amount of work, the length of hauls and condition of the roads, their KisselKar Trucks are always on the job day and night.

The reliable Kissel-built engine insures uninterrupted haulage and delivery schedules. The superior Kissel-built construction insures the stand-up qualities that brick and clay business men demand in the trucks they use.

The Kissel BUILT-IN strength, the perfected worm drive rear axles and other structural Kissel superiorities insure continuous service at low upkeep.

Let us send you information and data on how KisselKar Trucks are solving the transportation problems of owners in the brick and clay business.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfected worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns

Five sizes—from the Light Delivery up. Chassis prices $1085 to $3750.

KISSELKAR TRUCKS

Scale is the second best insulator of heat known to man and when you place scale between the water in the tubes and the fire itself, the heat energy of the fuel you are burning is well exhausted before it has a chance to convert the water into steam. Another vitally important consideration which arises at this point is that, when scale prevents the water from absorbing the intense heat applied to the boiler, the heat acts upon the tubes, causing them to melt, bulge out, and sometimes burst. In this manner the life and the efficiency of a boiler are greatly decreased, and every day that scale is allowed to remain upon the tubes the condition of the boiler becomes worse.

The Illinois Boiler Cleaning Compound, manufactured by the Illinois Boiler Cleaning Compound Company, 127 N. Dearborn Street, Chicago, Ill., has for seventeen years been successfully combating the scale nuisance on hundreds of plants located in practically every part of the country. At no time have conditions arisen that hindered its effective action. Being a vegetable compound, it contains no acid or other substance that might injure the boiler—it is, in fact, a boiler tonic. It has no chemical action upon the metal but merely detaches from the tubes the scale which has already formed, and prevents the formation of further incrustation. It is made in either powder or liquid form and one small package, injected in a 50 h. p. boiler *once a month* will keep it clean and free from scale. By eliminating the necessity for washing out the boilers every three or four days, Illinois Boiler Cleaning Compound effects an appreciable saving in water, fuel, labor and worry in the course of a year.

The following letter, dated January 8, 1917, was received from the Illinois Brick Company, which operates a string of common brick plants in northern Illinois:

"About ten years ago we began using your compound. We have found it to surpass all other compounds and cheerfully recommend it for any and all uses requiring a boiler compound."

Similarly, the Akron (Ohio) Brick Company has found Illinois Boiler Cleaning Compound to be an effective scale preventative and remover.

The Illinois Boiler Cleaning Compound Company, 127 N. Dearborn Street, Chicago, Ill., will upon receipt of the proper shipping instructions and statement of the horse power of your boilers send you a sufficient quantity of their compound to enable you to determine its value. When you have found that it will do all its makers claim for it, and send a repeat order, they will bill you for this trial case at the usual rate. If you don't send a repeat order you won't receive a bill for the compound used. There are no strings attached to the offer and by availing yourself of it, you are obligating yourself in no way. And no gold watch will be send you to induce you, or your engineer, to use Illinois Boiler Cleaning Compound—the product is sold simply on its merits, which are high enough to enable its manufacturers to propose this trial offer and feel confident that after you have given their compound a trial, you will not be without it.

By taking advantage of this unique offer you will remove the scale nuisance from your plant, eliminate the possibility of explosions occurring from this source, save fuel, increase the life and efficiency of your boiler, and prevent pitting, corrosion and foaming.

* * *

Better Boiler Grates

The difference between the old style wasteful dumping grate and the Martin rocking grate is being exploited in a forceful manner by The Martin Grate Company, 347 South Dearborn Street, Chicago.

It is shown that in the dumping style of grate it is necessary to dump the greater portion of the coal and ash on each grate bar in order to clean the fire. In this operation it is a foregone conclusion that the bed of coals bridging between the bars must fall into the ash pit.

The waste of this method is negligible perhaps in one hour's time, but in days, weeks and months, the total loss is appalling.

It is obvious, of course, that a dumping arrangement must of necessity allow for sufficient space between the grate bars (in the dumping position) so that the clinker and ash will slide by gravity into the ash pit.

If the operation differentiated between the ash and clinker and the unburned fuel, the theory and system would be desirable, but it does not because it can not, and good fuel from the top of the bed of coals is dumped equally with the dead ash.



In the Martin type of grate, it is a practical impossibility to lose any live fuel thru the grate bars. The bars are small in width, and deep, and during cleaning they rock back and forth, crushing and pulverizing the lower burnt-out portion of the fuel bed, causing the ash to drop thru to the ash pit, but leaving the burning fuel bed and fresh coal undisturbed.

The advantages are many in addition to elimination of unburned-coal loss. The fuel bed is not molested and does not have to be rebuilt at intervals; the tendency to form clinkers due to stirring of the fuel bed is lessened; the fuel bed can be carried thin, increasing furnace efficiency; a cheaper grade of fuel can be used—and finally the bed can be kept clean all of the time and with minimum effort.

The above can be summed up in a few concise words: All the fuel is completely consumed, no fuel is lost, cheaper fuel can be used and as a consequence the same boiler steaming capacity is secured at a 25 to 50 per cent. reduction in cost.

At present (and future) coal prices this means that a remarkable saving in money is accomplished by the use of The Martin Rocking Grate.

New Home for "Proctor" Dryer

The Philadelphia Textile Machinery Company, Philadelphia, Pa., have just completed their new plant at Sixth Street and Tabor Road, and are completely installed.

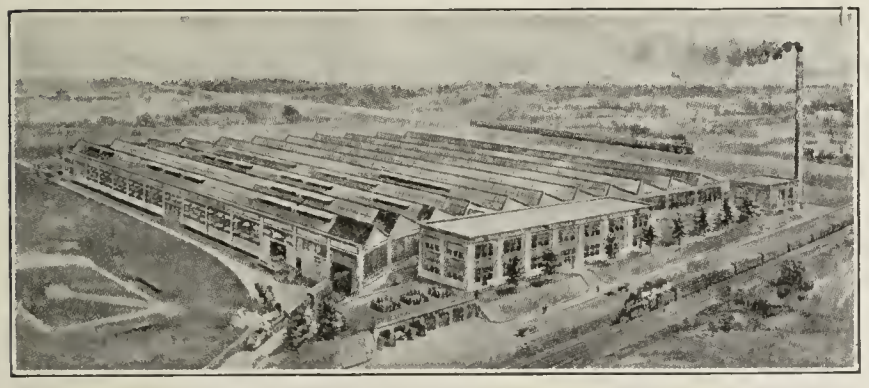
This new structure is modern in every possible way. The floors are tile-concrete fireproof construction, the walls of brick and concrete, the window space is exceptionally large, and the roof construction with saw-tooth truss allows for maximum light.

Every effort has been made to secure convenience and comfort for employes, knowing that satisfied workmen turn out the best work.

Even an athletic field has been provided for the men who fabricate "Proctor" Dryers.

Jenkins Bros. Discs

Jenkins Bros. disc for valves was one of the first, and continues to be one of the most important, of their products. No other article produced by them receives more care



New Home of the "Proctor" Dryer

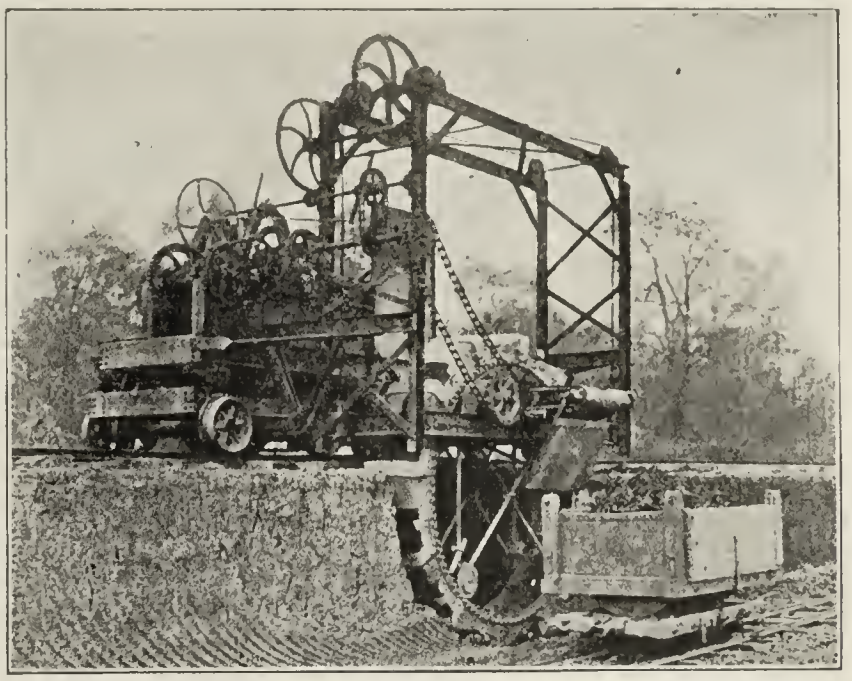
or attention. They are made of ingredients which long experience has shown to be most serviceable, and are compounded with such accuracy as to produce practically a uniform product.

The principal compounds, each best suited for a particular kind of service, are listed below and when used in service specified *are guaranteed*. The discs of hard composition, which become flexible under steam pressure, used in the globe and angle valves, when intended for steam service, are the result of much scientific research and elaborate test and experiment; and the reports of engineers who are using them, are convincing proof that they admirably meet the severe working conditions of present-day practice. Other compounds, because of greater pliancy, are more suitable for cold water, gas and air service. If in doubt when ordering, it is best to specify the service for which the discs are intended, so that the proper compound may be furnished. The following schedule will doubtless be of assistance:

SCHEDULE OF PRINCIPAL COMPOUNDS AND SERVICE FOR WHICH THEY ARE GUARANTEED

No. 119

This is the new disc recently perfected in the Jenkins



On TOP of the PIT

THE BUCKEYE DIGGER

serves equally well in either position, delivering the clay to cars either in the pit, or upon the bank.

It is extremely low in purchase cost; and power, labor, and maintenance cost is also extremely low.

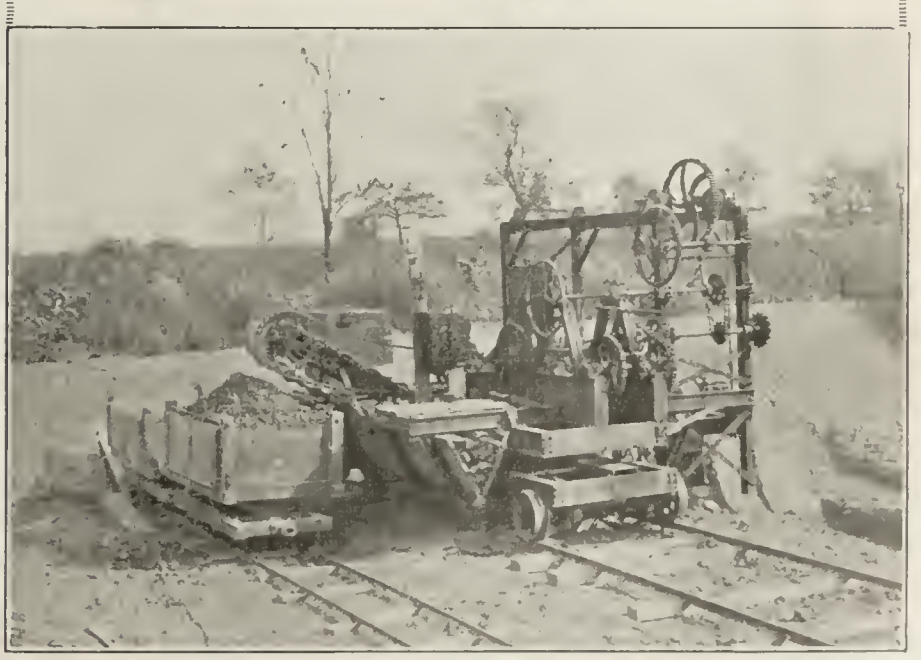
The Haeger Brick & Tile Co., Dundee, Ill., say in part regarding their machine.

"It has given us most satisfactory service and has been an important factor in improving the quality of our tile."

Write and tell us your conditions; let us submit proofs of ability.

The Buckeye Traction Ditcher Co.
FINDLAY OHIO

Or DOWN in the PIT
It doesn't matter which



SAY "I SAW IT IN BRICK AND CLAY RECORD"



The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men— in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.25
Brick Drying (English edition)	1.00
Bricklaying, Rudiments of Practical	.65
Bricklaying System	3.00
Brick Work (Walker)	.65
Brickwork and Masonry	3.00
Building Construction and Superintendence, Part 1, Masons' Work	6.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	5.00
Clay Glazes and Enamels	5.00
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.25
Clay-Working Problems	1.50
Economies in Brickyard Construction and Operation	1.00
Effect of Heat Upon Clays	2.00
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Estimating Frame and Brick Houses	1.00
Garages and Motor Boat Houses	1.00
Glazer's Book	1.00
Hollow Tile House, The	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.50
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.50
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Efflorescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent import duty.

***Address,* Book Department,**

Brick and Clay Record

445 Plymouth Court, Chicago, Ill.



Selden Three and One-Half Ton Model, "NL"

factory. It will hereafter be used in all Jenkins Bros. Standard Pattern Globe, Angle, Cross, Y, Safety and Radiator Valves, when intended for *steam service*. The composition is very hard, but becomes tough and flexible in service when under steam pressure. It shows remarkable freedom from cracking and flaking, and unrivalled durability in working steam pressures up to 150 pounds.

No. 100—Soft

A tough, semi-hard disc especially recommended for hot water service. This is the composition regularly used in Jenkins Bros. Check Valves, both standard and extra heavy, horizontal, angle and swing patterns, when intended for boiler feed lines and returns.

No. 93

Rubber disc made expressly for cold water, gas or air service, and regularly supplied in all Jenkins Bros. Globe, Angle or Check Valves, when intended for such service. This is a tough, pliable composition, suitable for hydraulic pressures up to 250 pounds.

No. 94

A soft, tough, elastic disc for low pressures of water, gas or air. Suitable for use in valves or other devices where a tight closure is desired with a minimum amount of pressure applied to disc.

In addition to the above, Jenkins Bros. Discs can be furnished to order in different compositions to meet most any conditions. If in doubt, write the company, at 80 White Street., New York. Your requirements will be given special attention.

* * *

Introducing Selden Trucks

Some day perhaps the true story will be told of the actual terrible conditions encountered by the United States army during the recent Mexican troubles. When this story is told, it will not be complete without reference to the almost impossible tasks that were performed by the Selden Motor Truck which at that time was on trial. This truck had an opportunity to demonstrate conclusively not only its hardiness, but also the fact that its power is such that it performs according to its capacity with the lowest minimum effort and expense.

Selden Trucks, which will be described more in detail at a later date, are made in five sizes, ranging from ¾ ton to 5 ton capacity. The 3½ and 5 ton sizes are particularly adapted for use in the clay-products industry. Their weight is in proper proportion to capacities so that they are not so heavy as to be impractical.

Selden Trucks possess those qualities which are so absolutely essential to make their use economical in the clay-products industry. They are manufactured by the Selden Truck Sales Company, Rochester, N. Y.



The EDITOR'S CORNER

Time is Opportune to Contribute to Technical Investigation

IN CONNECTION with the editorial which appeared on this page in the April 10 issue, setting forth the need of the Technical Investigation Committee of the National Brick Manufacturers' Association of your support and urging that this support take the form of a substantial contribution to its funds, the following extract from a letter from Professor Edward Orton, Jr., Columbus, Ohio, chairman of that committee, is of interest to our readers because it reveals his feeling in the matter:

"Your letter of April 12 with check for $100 enclosed, to be devoted to the technical investigation work which I am carrying on for the National Brick Manufacturers' Association thru their technical investigation committee, came as a very agreeable surprise. I have read also the editorial in 'Brick' and fully appreciate the fine spirit shown by 'Brick and Clay Record' in this matter. The money of the technical investigation committee is being expended thru the Ohio State University at present. The work is being done in their laboratories and their equipment is being used. I will accordingly deposit this money to the credit of this fund in the University, and assure you that it comes opportunely, and will be expended for the good of the cause to the very best of my ability."

The point brought out in this letter which we wish to emphasize is the propriety of present action. *Now is the time* to send your check to Professor Orton, while plans are being made to enter upon a more extensive program of technical investigation. This work is eminently worthy of our best support. Come on, boys, "open up."

* * *

Effect of Railroad Surrender Now Apparent

WHEN THE BROTHERHOODS demanded, upon threat of strike, a material advance in wages, and received that advance with the aid of the President, Congress and the United States Supreme Court, those who had made a study of the situation predicted that the railroads in the very near future would be compelled to ask for an increase in freight rates in order to offset the new item of expense. Just how much of an increase in rates would be necessary was not given very much discussion, but it now develops that the railroads desire fifteen per cent.

In addition to the unwelcome demands made upon the carriers by the Adamson Law, they give as their reasons for asking a greater revenue the following:

Greatly increased operating costs.

Increased cost of equipment and capital.

Increased taxes.

Additional expenses to meet the demands of the general commerce of the country and the additional obligations that are arising in connection with plans of national defense.

The whole railroad situation has been handled improperly from one end to the other. Instead of a capable commission being appointed to investigate the need of the railroad employes for an increased wage, as well as its amount, and determining what ought to be done in the way of securing additional revenues for the railroads to meet this additional expense, the brotherhoods have been allowed to literally "hold up" the national government and the carriers. Not having much choice in the matter, the railroads have been compelled to turn around and extract the cost of the "hold-up" from shippers.

We are of the opinion that there are good and sufficient reasons for the trainmen receiving a certain increase in wages. We likewise believe that the roads, in order to pay these increased wages and to purchase the new equipment which they need, because of the greater demands made upon them, should receive some sort of increased compensation for the service which they render shippers. However, we firmly believe that those in authority should not have allowed the increase in wages to be granted in the manner it was.

Inasmuch as this is now history, it remains for the Interstate Commerce Commission to make a fair investigation into the right of the roads for a fifteen per cent. increase. If fifteen per cent. is too much, it most assuredly should not be granted.

Should the Business Man Bear the Whole Burden?

IN THE EVENING of April 15, Secretary of the Treasury McAdoo, submitted to the senate finance and the house ways and means committees, suggestions as to new sources of taxation thru which to raise approximately one-half of the estimated cost of the first year of the war, or $1,807,250,000. The other half of the cost is to be provided by two billion dollars of the bonds authorized by the war revenue bill.

Most prominent among the secretary's suggestions are greatly increased income and excess profits tax rates. Increases in the excess profits tax by making the present law applicable to the calendar year of 1916 and applying new increases next year, the secretary thinks, would raise $226,000,000 this year and $200,000,000 additional next year.

Among those who were first to offer their support both financial and physical to the government immediately after the declaration of a state of war as existing between the United States and Germany, were the manufacturers and business men of this country. Samuel Gompers told President Wilson that labor was with him in the existing crisis but he did not hesitate to make it plain that the conduct of the war would have to conform to the ideas of organized labor. Professional men were not backward in offering their services to "Uncle Sam," nor were other interests, but no one seems to know what the farmer has done toward stating his intention to back up the president.

Of those who are profiting most from the unusual conditions existing at the present time, the farmer is close to the top. Yet, little is being said in Washington regarding methods or plans which will involve the farmer paying his share of the war expenses.

The manufacturer is not "kicking" about paying his share, but he does believe that instead of devising new ways to tax corporations and industrial concerns, the administration and Congress should turn its attention to other interests, which have so far escaped bearing their just portion.

WANTED--*a* HELPING

Recent Home and Real Estate Show Brings Out Need for More Aggressive Association Work on the Part of Brick Manufacturers, to Combat the Efforts Being Put Forth by the Large and Efficient Organizations of the Lumber and Cement Interests, Not Only in the "Cream City," But All Over the Country

LUMBER-BUILT MILWAUKEE has just closed the doors of its big "Home and Real Estate Show," held at the Auditorium, from April 9 to 15, and in writing "finis" across the bottom of an excellent seven-day program, the "Cream City" left as a matter of record another tremendous victory for the cement and lumber interests in their aggressive drives upon the pocket-book of Milwaukee's home builders, and as much gain for the brick interests as could be won by the efforts of two progressive companies, which shouldered the burden of giving to brick some much needed publicity.

Five local lumber companies, merged into a combination to promote the use of their material by advertising its advantages to the builders of Milwaukee, erected a most impressive display, picturing the uses to which wood might be put, both in factory and home construction. A large wooden sign, beautifully grained and attractively lettered, carried the message of "Wood Where Wood Is Best" and gave to that material credit for being an absolute non-conductor of heat, a material which entails practically no upkeep, and one which is permanent and everlasting. And with the exhibit that backed up the message which looked so good on the sign, it is not to be doubted that the story went across and will make more than one of the show visitors a booster for lumber. Several individual exhibits of this material were also maintained, being placed at just the proper distances to remind the builder of the fact that LUMBER was the material for him to use.

CEMENT INTERESTS ALSO "ON THE JOB"

Similarly, concrete played a star part in the big show. At practically every bend in the aisle a display of that material, conducted by individual companies, local organizations, or the national association, was there to catch the eye of the prospective customer. Not only were its qualities as a home building material vividly portrayed in excellently designed displays, but its suitability for use in the construction of roads and outhouses was also depicted in the many exhibits given over to it. In all, about six or seven displays were on the job, day and night, piling up business for the cement industry.

Another admirable example of co-operative work and its possibilities was to be found in the most attractive exhibit of the show—a completely furnished, seven-room, model stucco-on-wood bungalow, constructed in the annex of the Auditorium. This display was erected thru the co-operative effort of about thirty Milwaukee companies engaged in manufacturing or selling practically everything that goes into the construction and furnishing of a cozy, modern home.

BRICK IN MILWAUKEE'S SHOW

But all this is preliminary to a statement of the part played by brick in Milwaukee's building exposition, and a few remarks about the unusual condition of the Milwaukee market which, as every face brick manufacturer knows, consumes a very small percentage of the supply that a city of like population would ordinarily use. It is indeed true that the brick industry was not without a color bearer in the Milwaukee show. Two very beautiful exhibits of the everlasting material were erected by the Wisconsin Face and Fire Brick Company and the Acme Brick Company.

When it started selling brick a year ago, the Wisconsin Face and Fire Brick Company, of which E. M. Kraatz is president, and J. J. McCoy, sales manager, determined to put brick on the level where it rightfully belongs in the Wisconsin metropolis by making the people of that city realize that permanent construction is safe construction and cheapest in the end; that, contrary to the opinion entertained by practically every home builder in that city, brick is not a luxury to be used in the construction of costly residences, but is the poor man's material; that its use in a building increased the initial cost by not more than ten per cent. and at times less than eight, despite the statements of local carpenter-contractors to the effect that brick increased the total cost of the building from twenty-five to fifty per cent.

It was, therefore, merely in line with its predetermined course to develop a demand for brick, when that company decided to spare no expense in the construction of an exhibit that would be worthy of the material it displayed, altho the benefits to be derived from the expensive piece of publicity work were of a general nature and would be shared by all the other Milwaukee companies handling that product.

FIRE-PLACE DISPLAY DOES CREDIT TO BRICK

Traveling the way almost alone, the Wisconsin Face and Fire Brick Company invested several hundred dollars in the construction of a strikingly beautiful fire-place in which it used six different styles of rough-textured and smooth-faced brick. Leading out from both sides of this masterpiece of brickwork was an attractively designed and well executed garden wall of brick, which

HAND *in* MILWAUKEE



The Two Sole Exhibits Pulling for Brick in the Recent Milwaukee Building Show. The Beautiful Fireplace Shown on the Left was Erected by the Wisconsin Face and Fire Brick Company, While the Exhibit on the Right Bore the Name-Plate of the Acme Brick Company

ran around the company's booth and terminated in two tall, beautiful gate posts at the main entrance of the exhibit. These posts, laid up with a flush joint in stretcher bond, were capped with two large lamps which lent additional beauty to the display at night. Altogether, the company performed a very creditable piece of work and, to use a patriotic phrase, "did its bit" in pushing the demand for brick and in displaying its possibilities to the Milwaukee public.

Altho somewhat less pretentious than that of the Wisconsin Face and Fire Brick Company, the display erected by the Acme Brick Company, given over largely to sand-lime brick, was exceedingly attractive and undoubtedly gave additional impetus to the slowly growing demand for brick in Milwaukee. It consisted of two large panelled walls, containing displays of many styles of brick handled by the Acme Brick Company, and was very neatly set off by two simple gate posts placed at the entrance of the booth upon which were mounted green ferns.

It is needless to state that the efforts of these two companies will be productive of highly profitable results when judged from the standpoint of how much they have done to stimulate thought about permanent, rather than flimsy construction. However, if there had been three or four more such exhibits scattered thru the Auditorium to continually impress upon the minds of the visitors the message of better building, or if there had been but one large exhibit supported by the manufacturers as well as the dealers who supply the Milwaukee territory, the results would have been infinitely more worth while.

MILWAUKEE A LUMBER-BUILT CITY

Unlike other American cities of similar size, Milwaukee is essentially a lumber-built city. Face brick manufacturers supplying that market have often wondered why, with a population of almost four hundred thousand, it consumed only eight or ten million brick a year, when Chicago, but eighty-five miles away and with a population only six times greater, furnishes a market that consumes approximately 112,000,000 face brick annually.

A trip thru Milwaukee, however, quickly clears away all mystery surrounding this condition. In the exclusive residence districts; in the more congested manufacturing centers, and in that section of the city housing the middle class of its people, frame is the material that has been used in the construction of Milwaukee's houses. For solid blocks, and, in fact, sections, miles in length and width, a brick house is hard to find. Facing upon the fashionable drive and parkway, as well as the busy street, the homes that shelter Milwaukee's people are made of wood. Alongside of a flimsy frame structure that has seen many years of service, and shows plainly the scars of battle, the new structures continue to rise—built of the same flimsy frame. Everywhere thruout the city, with the exception of "Millionaire's Row"—the fashionable drive which looks out over a bluff upon the lake—Milwaukee is built of frame.

MARKET IN NEED OF DEVELOPMENT

There are many causes for this condition. In the first place, Milwaukee's fire laws are far from stringent, frame structures poking their menacing presence into the very heart of the city. Also, the close proximity of the Wisconsin city to inexhaustible supplies of lumber makes it possible for the Milwaukee builder to secure that material at what he deems a "cheap" price. A third reason, however, for the prominence of frame in Milwaukee building is that brick has not been pushed to the point

where the people understand its fire-safe properties, its stability and permanence, and its low upkeep.

What is needed to correct this condition and to create a market that will absorb 30,000,000 instead of 10,000,000 brick annually, is the extension of the fire limits to a point far beyond those at present in force, and the co-operative action of the manufacturers and dealers in stamping brick indelibly upon the minds of Milwaukee's builder as the only safe, permanent and economical building material.

Car Shortage Hits Illinois Brick Company

The Illinois Brick Company, with headquarters at Chicago, Ill., with orders enough on its books to keep it operating to capacity far into the summer, is operating only three of its ten yards as a result of the car and coal shortages. In a statement regarding the situation President Schlake said:

"We expect to open a few more plants soon on promise of some relief from the railroads. If the car situation gets worse we will be even more seriously hampered than we are. It is impossible to say what effect the war will have on our business. We know that with a free car movement, we would be working full time at all plants. There is no indication of any tendency for the building industry to halt, and this season promises to exceed last season if the congestion can be removed. Barring congestion, the war would have no effect.

"Prices for brick are the same as last year. Costs are somewhat higher on account of advances in the prices of coal, fuel oil and supplies. Wages have not changed, as we are working under a five-year contract."

Georgia Brick Co. Makes Export Shipment

The Georgia-Carolina Brick Company of Augusta, Ga., recently made what is supposed to be the first export shipment of brick from the state of Georgia. The shipment, consisting of one carload of selected brick, had a value at Augusta of $119. The freight charges incurred by its transportation from Augusta to Matanzas, Cuba, amounted to $375. About 982 miles of land and water were traversed by the brick before they arrived at their destination. They are to be used in the construction of improvements at the Armour Packing Company's plant at Matanzas.

National Fire Proofing Co. Elects Directors

At the annual meeting of the stockholders of the National Fire Proofing Company, held recently in Pittsburgh, Pa., the following directors were elected to serve for three years: A. S. Reymer, J. J. Fisher, S. F. Heckert and James J. Booth. John R. Gregg, a director of the company, presided at the meeting. President W. D. Henry said the company has been having some trouble in getting cars, like all other concerns, but is now in a position to refuse orders because of good business. All of the company's plants are working to capacity. In answer to questions as to when dividends on the preferred would be paid, Mr. Gregg said that the preferred should pay a dividend this year provided nothing unforeseen happens to upset calculations.

Mr. Heckert said that the company's property at Perth Amboy was worth more than the outstanding bond issue and that he had great faith in the Haydenville property becoming splendid oil producing territory. In his judgment, the company could liquidate and not only pay preferred shareholders in full but, perhaps, could pay something on the common.

Ralph W. Allison, vice-president of the National Fireproofing Company, Pittsburgh, Pa., has severed his connections with that company. Not only has Mr. Allison been one of the leading figures in the National Fireproofing Company for many years, but his position in the industry at large is an exceedingly high one. No announcements have as yet been made by Mr. Allison regarding his future plans.

New Hocking Valley Products Co. Officers.

S. L. Chamberlaine, of New York City, who succeeded Daniel E. Reagan as president of the Hocking Valley Products Company, of Columbus, Ohio, was in Columbus recently preparing for his new duties. Robert Taylor, Jr. of Baltimore, who has been on the ground for some days, is to be resident manager. The company owns 14,000 acres of coal lands in the Hocking Valley, on which are many improvements, including a mammoth brickmaking plant constructed several years ago at a cost of over $500,000, and located at Greendale. No change of policy is likely to be made in the conduct of the business, for the present, at least. H. F. White remains in charge of sales in the brick department.

Western Concern Undergoing Expansion

Taking advantage of the heavy demand that has developed for drain tile, hollow building tile, silo tile, rough textured face brick, paving brick and flue lining, the Sheridan (Wyo.) Press Brick and Tile Company is making extensions and improvements at its plant that will enable it to manufacture all of these products. The new lines will be placed on the market, it is expected, some time early in the summer. This big expansion of operations was authorized at the last meeting of the directors of the company, and orders for the necessary machinery and equipment were placed immediately. Several of the changes required by the extension have already been made and some of the machinery has arrived. A portion of it, however, is still to be received. It is not to be doubted that the addition of these several new lines to the products it manufactures, which in the past have consisted chiefly of pressed brick, will give the Sheridan company a much wider market. A very encouraging situation exists in the territory surrounding Sheridan, the farmers in that section realizing the necessity for draining their farms and constructing their silos and farm buildings of the most permanent material—hollow tile. The Sheridan Press Brick and Tile Company has enjoyed a very prosperous year and is looking forward to a continuation of a heavy business.

Superior American China Clay Developed

Development of an American clay that promises to make the tile and chinaware industry in this country independent of foreign materials was announced recently by the Bureau of Mines, Washington, D. C. Under the supervision of Director Manning of the Bureau, and with the co-operation of potteries, clay found in large quantities in Georgia and South Carolina has been purified until it serves as a substitute for the fine English china clay on which the American industries heretofore have been dependent.

BRICKMAKING *in* RUSSIA

A Timely Picture of Conditions as They Existed Before the War, as Well as a Graphic Presentation of Opportunities Peace Will Bring, in the World's Newest Democracy

By Alexis Zakharoff

IN THE LIGHT of recent sensational occurrences, which have drawn the spotlight of public attention to Russia, a study of the methods employed in the manufacture of burned clay products in that country is of especial and timely interest and of value. Undoubtedly, upon the cessation of the conflict that is now raging in Europe, there will be an opportunity for great expansion and unprecedented development in this industry in the world's newest democracy.

Primarily, Russia is an agricultural country, the vast majority of its people obtaining their sustenance from tilling



ALEXIS ZAKHAROFF
of Petrograd, a Russian Engineer and Brickmaker

the land. Possibly in no way can a comparison be drawn between Russia and the United States along industrial and commercial lines. Even in the performance of its national pursuit, agriculture, methods that would seem to you very old fashioned, tho full of interest and showing a primitive ingenuity, are employed.

WAR CAUSES JUMP IN MANUFACTURING COSTS

In Russia, since we have not been harassed by labor problems and troubles, labor, that once was plentiful and cheap but now scarce and comparatively costly, has taken the place of your machinery, altho, of course, it performs the work much less expeditiously. In Russia, the brickmaking and ceramic industries may be said to be still in their infancy. The modern burning methods so commonly used here are practically unknown in my country. The very modern and comparatively highly efficient kilns do not exist, kilns of an old and primitive type being used to accomplish the work of burning. Still, however, before the war, wood as a fuel was cheap in Russia, and the difference in cost, therefore, was not so great as it might at first appear. The favorable conditions existing before the war have been changed. Labor, once so plentiful, has been gathered into the army, fuel has become costly and Russia no longer can get assistance from the German Empire, which formerly enjoyed a splendid market there. In view of these conditions, this is the favorable and psychological moment for outside help, for new industries to invest and develop in Russia.

Before the war, the cost of molding brick by hand amounted to 3.50 roubles a thousand, that is, about two dollars. The cost of doing this work at the present time is three times greater, reflecting the change that has come about in the Russian clayworking industry as a result of the strife.

Of course, under present conditions the construction of large plants in Russia would be inadvisable, because of the poor transportation facilities existing there. The manner in which you ship large quantities of brick or tile from Ohio into New York would be impossible of attainment in Russia. Consequently, it would be difficult to effect any centralization of the industry. Factories would have to be constructed, either large or small, according to the necessities of nearby towns.

OLD HORSE-DRIVEN PUG-MILL USED

It would undoubtedly be interesting to trace the steps or processes of manufacture thru which a burned clay product, made in Russia, passes. Our way of mixing clay affords an excellent example of the primitive and antiquated methods generally used by Russian manufacturers. The clay is taken from the bank by hand, placed in a wheelbarrow, and brought to what we call the bucket but which is termed in this country as the pug-mill, where it is mixed. In the center of this bucket is placed a post to which is attached a long arm, which extends outward from the pug-mill and to which a horse is hitched. The horse driven around and around keeps this post moving, thereby mixing the clay and gradually forcing it to the bottom of the bucket and out thru a small aperture.

After the mixing process has been finished, the clay is again placed in wheelbarrows and brought to the molder, who molds the brick by hand. The brick are then placed in open air dryers and after the moisture has been extracted, are conveyed to the kiln on small wagonettes. Because of the lack of artificial dryers in Russia, the factories, particularly in the northern section of the country, are able to operate only four months out of the year—when the weather is favorable.

As I have briefly sketched the picture of the Russian plant and its methods, you have undoubtedly recalled to memory

one or two such establishments even in your progressive country. However, instead of being located at very widely separated points, these plants make up the clay products industry of Russia, and a more progressive establishment is, conversely to your own conditions, the exception there.

INTERESTING FACTS ABOUT RUSSIAN LABOR

Workmen engaged in the industry live in villages where everybody has the same vocation—that of brickmaking—which has been handed down from father to son for generations. During the working months, they move in a body to the brick manufacturing center and return to their villages at the end of the season. Those workmen who mold brick receive about two roubles for 1,000 brick plus 100. This extra 100 is a custom peculiar to Russia and serves to pay for the board and lodging and bath establishment provided for the workmen by the factory owners. Those workmen who remove clay from the bank and convey it to the mixing and molding section, receive one rouble and 80 copecks for 1,000 brick. The output of practically every Russian plant is dependent on the two classes of workmen, but trouble between them is rare since they all belong to the same clan.

During the season, the Russian workman earns between 150 and 200 roubles. He works twelve hours a day, starting at five o'clock in the morning and working thru until nine o'clock in the evening. You may gather from that we have no unions. Women are also employed in the brick yards to move the brick from the dryers to the kilns. Their salary, however, due to their sex, amounts to only 70 copecks for a twelve-hour day, which in American money would amount to about forty cents.

To give you an example of our lack of modern conditions, it is but necessary to call your attention to the fact that a large factory in Russia, producing 10,000,000 brick, has a working force of six hundred people, made up of men, women and children. A Chicago factory which I recently visited controls an output of 60,000,000 brick and employs but seventy workmen.

NO ROUND DOWN DRAFT KILNS

Russia's method of burning brick and other clay products is very old fashioned. While in a few factories of the more modern type a continuous kiln has been placed in service, the older and smaller factories continue to burn their product in stacks. Producer gas is unknown as a fuel for burning clay products in Russia. Coal and wood are the types of fuel used in burning. The coal used in the north of Russia is, as a rule, mined in England, while that used in the southern portion of the country comes from its own mines. The price of coal is now practically the same there as it is here. In the more modern factories, auger machines are used, while in some the soft-mud process of brick manufacturing is employed. Steam engines generally furnish the necessary power, especially those combined with boilers of the portable type, since they are simple to operate and easy for the workmen to understand.

After being manufactured under these conditions, the brick are shipped to the market by water or by railroad, bringing a price in Petrograd, before the war, of twenty-six roubles a thousand, or thirteen dollars.

Such is the state of affairs at the present time, but the dawn of peace should bring a new era of enlightenment for Russia. The door is bound to swing wide open for new ideas and new methods and the avenue of opportunity for the American capitalist and manufacturer will be open and inviting.

BIG MARKET TO DEVELOP FOR CLAY PRODUCTS

To cite an example of the market that is bound to develop for clay products, I can refer to the great demand that will exist for paving brick, which will be needed for the construction of new roads in Russia. Statistics show that in Russia, for 90,000 miles of rail, there are only 25,000 miles of highway roads. This is in great contrast to the condition existing in France, where for 60,000 miles of rail, there are 80,000 miles of highway. The need, therefore, for paving brick is quite obvious.

As soon as peace is declared, the restoration of roads and rebuilding of houses and factories is bound to occupy the attention of the Russian government and public. Hundreds of miles of roads will have to be rebuilt and repaired and, with the proper promotion, brick will be the material used. The use of brick, moreover, will be obligatory in many cases because of the great quantity of forests destroyed by shell fire.

Prior to the war, all machinery for manufacturing purposes was purchased from Germany. After the close of the hostilities, however, the opportunity will be given America to supplant Germany in this field. And America must be prepared to take advantage of this condition.

Russia is minus any large factories for the manufacture of brickmaking machinery, there being only one factory of limited capacity, operated by Krull in Riga, in all Russia including Siberia. The establishment of plants for the manufacture of steam engines and motors suitable for use in brick and tile plants is also essential since there is only one small factory in Russia making such equipment.

When one realizes the fact that the majority of houses in Russia are constructed of wood covered with thatch and that the fire loss amounts to 330,000,000 roubles every year, which amounts to practically 1,000,000 roubles a day, the necessity for permanent brick construction is very apparent.

There are in Russia vast deposits of fine clay which can be utilized for manufacturing fine floor and wall tile, pottery, and sanitary ware, as well as brick, tile and other cruder products and in developing the clayworking industry in that country to utilize these deposits, the first step necessary is to organize a Russian-American Ceramic Society, which would have for its purpose the following:

1st. The establishment of a technical bureau to investigate the clay and fuel suitable for clay products manufacturing purposes.

2nd. The establishment of factories to manufacture these products, and particularly paving brick which the Russian government desires and will, no doubt, support.

3rd. The establishment of plants for the manufacture of brickmaking machinery and equipment.

* * *

Fort Dodge (Ia.) Freight Rates Raised

The Interstate Commerce Commission recently handed down a decision in connection with the western trunk line rate increase, in which it ruled that the "Proposed increased rates on hollow building blocks and hollow building tile in carloads justified." Speaking further on the subject of this building material, Commissioner McChord, who wrote the opinion says:

"Prior to September 1, 1915, a rate of eight cents on hollow building blocks and hollow building tile, carloads, was in effect from Fort Dodge, Iowa, to Chicago group points, which include points in northern Illinois and practically the whole of Wisconsin. On that date that rate was increased to ten cents to points in Wisconsin north of the main line of the Chicago, Milwaukee & St. Paul Railway from Prairie du Chien to Milwaukee, except points on the Green Bay & Western, Kewaunee, Green Bay & Western, and Ahnapee & Western railways. The failure to increase the rate to points on the latter lines was due to an error in publishing the tariff. In this proceeding it is proposed to correct that error.

"The rate on hollow building blocks from Mason City, Iowa, to the entire Chicago group is eight cents, but Mason

City is served by the Chicago, Milwaukee & St. Paul Railway, which gridirons the state of Wisconsin. Mason City is also seventy-two miles nearer than Fort Dodge to the particular destinations above referred to (Grand Rapids, Mich., Green Bay and Sturgeon Bay, Wis.). The general adjustment of rates on other commodities between Fort Dodge and Mason City on the one hand, and points in the Chicago group on the other, contemplates higher rates to and from Fort Dodge than to and from Mason City.

"No protestants appeared at the hearing in opposition to the proposed rates, and we find on the record before us that they have been justified."

Value of Clay Products in West Virginia

The Bureau of the Census has just published some completed figures on the census of manufacturers for the state of West Virginia for 1914. Taking up the clay products industry in that state, the report, in part, says:

"The clayworking industries of West Virginia ranked eighth in 1914 when measured by the value of products ($6,798,118), of which amount $1,976,816 represents brick and tile, terra cotta, and fire clay products, and $4,821,302 represents pottery. Thirty establishments are engaged in the production of brick and tile, terra cotta, and fire clay products, and fifteen in the manufacture of pottery. From the report of the United States Geological Survey, it appears that in 1914, in value of clay products, West Virginia ranked second in the United States in the production of white ware and sanitary ware; fourth in china ware, porcelain electric supplies, and vitrified paving brick; seventh in tile, not including drain tile; and seventeenth in building brick. In 1914 the capital invested in the fifty-five establishments reported was $9,368,799, an increase of 79.4 per cent. over $5,221,285 shown in 1909."

"Filling the Order"—A One Act Drama

"What good is an order if you can't fill it?" Emil M. Kraatz, president of the Wisconsin Face and Fire Brick Company, Milwaukee, asked J. J. McCoy, sales manager of the concern.

Business was rushing that day. The motor truck drivers were working over time. McCoy had just announced another rush order, but President Kraatz was on the verge of "giving up the ghost." They had one more truck, but it was minus a driver.

"We'll deliver the brick inside of three hours." McCoy replied.

"It can't be done." Kraatz came back.

That ended the discussion for McCoy was putting on his coat and hat. When he returned, Kraatz was waiting.

"Well we haven't got that rush order out yet, have we?" he asked his sales manager.

"You bet we have," was McCoy's reply.

"How did you do it?" asked Kratz.

"Had the driverless truck loaded and delivered the brick myself. Gee, but unloading brick is a hot job on a warm day like this," replied McCoy, as he dug out the office whisk-broom to remove the dust from his clothing.

PAVING BRICK MAKERS *to* HEAR COST REPORT

BEGINNING ON THE MORNING of May 8, and extending thru that and the following day, the program lined up for the next meeting of the Institute of Paving Brick Manufacturers, to be held at the Jefferson Hotel, St. Louis, Mo., contains topics of such intense interest and timely value that few, if any, of the members of this live organization are expected to be absent when President Kanengeiser's gavel falls.

Possibly the most important matter to come up for consideration at the May 8 and 9 assembly is the report of the expert cost accountant whom the Institute engaged at its last meeting, held in Cleveland on December 5 and 6, 1916, for the purpose of establishing a practical cost finding system, uniformly adapted to the requirements of paving brick plants.

COST REPORT CONTAINS NEW FEATURES

The report which the accountant has prepared for the meeting is the result of an extensive investigation of the processes of manufacture and the physical conditions existing in a number of the largest paving brick plants in this country, and presents, in considerable detail, a discussion relative to a complete distribution of expenses incident to the manufacture of paving brick. Careful consideration has also been given, in drafting the report, to the proper handling of the various items of production and manufacturing expense which materially affect the determination of accurate costs.

A number of features have been introduced into this report which are peculiar to cost finding as applied to the paving brick industry and which have not been discussed in other reports presented on this subject. These innovations in cost finding and accounting are expected to create a more lively interest in the subject for those members who make the report the subject of careful study.

Beginning with the operating expenses incident to the mining or gathering of clay or shale and its transportation to the crusher and dry pans, the cost finding procedure is carried down systematically thru the various manufacturing processes to the point where the complete cost of first-grade brick on cars, ready for shipment, is determined.

EXCELLENT PAPERS SCHEDULED FOR MEETING

The entire meeting, however, will by no means be given over to a discussion of the report to be submitted by the accountant, William Burr, who has had charge of the investigatory work carried on. During the meeting, Robert Keplinger, of the Metropolitan Paving Brick Company, Canton, Ohio, will present a paper on "Dies," and George Holbeck, of Canton, Ohio, is scheduled to read a paper on "The Use of Powdered Coal as a Fuel." E. T. Lenum, of Wilmington, Del., will discuss the subject of "The Use of Explosives in Shale Quarrying," and Eben Rodgers of the Alton (Ill.) Brick Company will talk on "Electric Drives."

The program will begin at ten o'clock in the morning, May 8, and will continue during the afternoon, terminating, for the day, in an evening dinner, to be served at six-thirty. The program will be resumed at nine o'clock the following morning and continue until noon. The afternoon will be devoted to an inspection of the burned clay products manufacturing plants in the vicinity of St. Louis.

TERRA COTTA LABORATORY LAYOUT *and a* DISCUSSION *of* GLAZE TROUBLES

The Last of a Series of Articles Dealing With the Manufacture and Use of This Wonderful Building Material

By Herman A. Plusch, M. S., Cr. E.
Research Engineer, Abrasive Company, Philadelphia, Pa.

NEARLY EVERY PIECE of modern architectural terra cotta is coated with some form of slip, glaze, granite effect or other surface which, when fired, differs from the body color of the burned clay.

Thruout this article when we use the term "slip," it will mean a gray, buff, granite or stone-like texture, whether vitreous or only partially vitrified. The term "glaze" is used in its regular sense, whether matt or lustrous.

The preparation of these surface coatings is one which needs scientific and technical supervision, a knowledge of ceramics, and ability to direct labor. The research chemist may be able to develop wonderful effects in a laboratory way, but if he has not the ability to pass his findings on to the men in overalls, his developments will yield little commercial return.

Composition of slips, glazes, etc., constitutes about fifty per cent. of the work of good surface finished terra cotta, and the balance is in the application and firing. With the composition of the slips or glazes the technical man has entirely to deal; in the application and firing of those slips and glazes he must deal with the men who actually do the work, and direct them along correct lines.

Since the preparation of slips and glazes plays so important a part in the production of terra cotta, it seems advisable to go into a little detail on the arrangement of a terra cotta laboratory and slip house, the equipment required and the most efficient arrangement of that equipment.

LOCATING THE LABORATORY

The laboratory itself should not be in some dark, obscure corner, altho this is very often the case, but it should be placed high and in a position where it will be exceptionally well lighted. The raw materials should be easily accessible, and the prepared glazes, engobes, etc., stored conveniently near the spraying department.

The most practical plan for such a laboratory is a series of mezzanine floors, rising from the second floor, with the bulk glaze materials, consisting of flint, spar, clays, zinc oxide, calcium carbonate, and so forth, stored on the ground floor, and if possible, so they can be unloaded from cars directly under the laboratory proper, which should be on the second floor.

The purchase of bulk lots of flint, spar and clays, loose in cars, is not only the most economical but also gives the assurance of a longer and more uniform supply. There are concerns today buying what we term bulk glaze chemicals in "dribblets" of from one to five-ton lots, and each time such a small order is placed the possibility of trouble arises and extra expense is entailed.

The ground floor plan of the laboratory and spray room, if laid out as shown in Fig. 1, will be found to work out very satisfactorily. The clays, flint, spar, and chemicals received in car lots are carried from large storage bins to smaller storage bins on a fourth mezzanine floor from which they are forced by gravity as they are needed (see Fig. 2). Sprayers, located at stations marked in Fig. 1, are convenient to the pipes thru which slips and glazes flow by gravity from storage tanks above, in which the material used for spraying is constantly agitated.

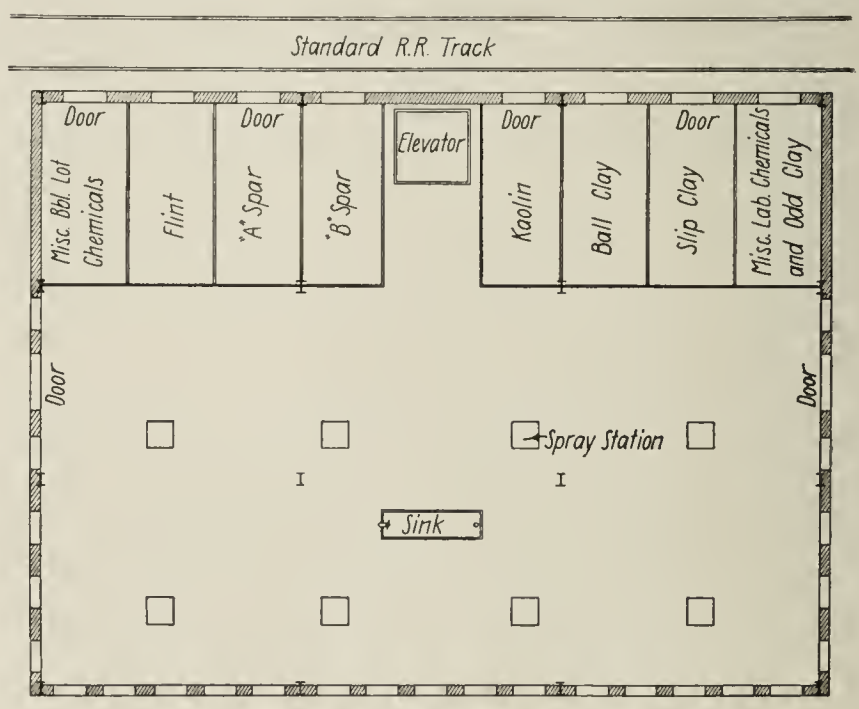


Fig. 1

ARRANGEMENT OF SMALL STORAGE BINS

Fig. 2 also shows in section the small bins on the top floor, which hold about two tons of spar, one ton of flint, one ton of clay and glaze raw materials in such approximate quantities as they are used. The size of the storage units can, of course, be adjusted to the plant's output. These small bins are filled by using a monorail overhead carrier. Below the row of small storage bins is a track on which a

scale is operated, on top of which a suitable receptacle is placed for containing the glaze ingredients which are fed to it by gravity . This receptacle is of such a height that, when tipped, it empties into a ball mill or blunger located on the next lower level. After the slips or glazes has been blunged, or ground, as desired, they are piped to a proper sieve and then to the various storage tanks, from which they are drawn by gravity. A four-inch copper leader pipe in four-foot lengths to permit of easy cleaning, has been found best for this purpose. Fig. 3 is a top view of the entire plant, showing the arrangement of the storage bins, track scales, ball mills and blungers, and agitator tanks.

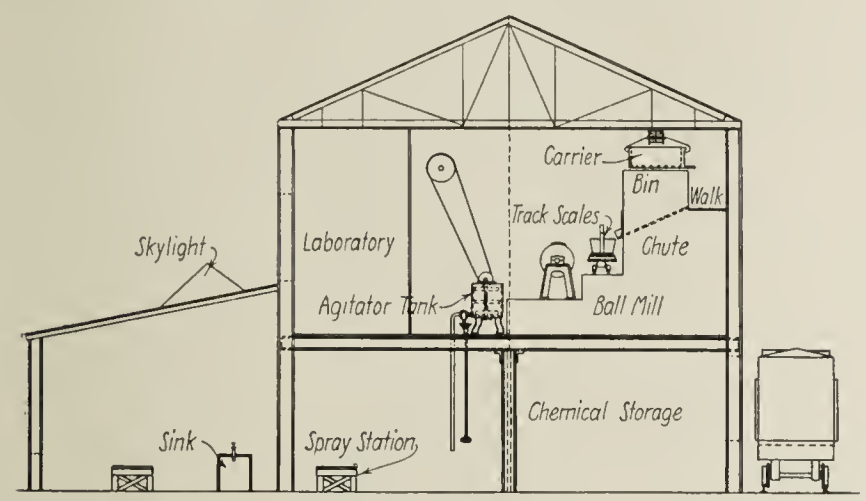


Fig. 2

A laboratory arranged in this manner for the preparation of slips and glazes can be operated by one man, on a plant manufacturing eight hundred tons of terra cotta a month.

The agitation storage tanks are equipped with a clutch and can be shut off separately when not in use, or when they contain gray slips in which manganese (MnO_2) is used to produce specks or fine spots, it being better not to have such slips in agitation except when being used, as the MnO_2, being soft, is made finer than the predetermined sizes introduced by constant abrasion caused by the slip ingredients in motion. Variation in color in gray slips often results from not watching this very point. The manganese, instead of being isolated in grains and producing individual specks when fired, causes the terra cotta to burn a flat muddy brown instead of a clean speckled gray.

POINTS TO CONSIDER IN PREPARING SLIPS

In the preparation of gray and buff slips some of the following points must be considered:

1—Color—when fired.
2—Degree of hardness—when fired.
3—Variation of color in burned material permissible.
4—Fitting qualities of the slip to the body.

It is not necessary ordinarily to grind gray or buff slips unless a more vitreous surface than can be produced by high spar or fritt is desired. Blunging and sieving thru an eighty-mesh sieve is generally sufficient, unless, perhaps, some very finely ground coloring material is necessary to produce the desired effect. In this case an hour in the ball mill often helps matters. Specks should be added after sieving

Using the Beaumé scale for acids, from 40° to 35° is about the right density for grays, 30° to 35° Beaumé is the proper consistency for very high clay slips, such as are used for red and buff colors.

The thickness of the applied color can be regulated by the number of coats of slip sprayed on the piece. Where three or four successive coats of spray are used, each succeeding coat must be put on before the preceding coat has dried, and each coat must show a shiny surface produced by the water in the slip, which is applied slightly faster than it is absorbed. If the slip, when sprayed, is allowed to dry between coats, blisters will result on account of air pockets produced underneath the surface.

The slip should not be sprayed too heavily in the angles of pieces, or cracks in the burned material will result at these points. Altho these cracks will only penetrate the slip itself, they become very unsightly when dirt accumulates in them upon exposure. To overcome this slip separation, very little slip should be applied in the angles. A wooden tool can be drawn thru the angle where the piece is dry. A small atomizer can be used after this piece has been originally sprayed, the slip in the angle separated (which nearly always occurs before firing), and a thin coating of spray filled in over the original slip crack.

Slip cracks, or separations in tool marks or on plain surfaces are caused by too coarse grog, too wet or too dry finishing of the piece, or too heavy application of the slip. Of course inherent defects in slip composition will not produce good results and some clays are more suitable as slip ingredients than others.

It is the providence of the chemist to determine the clays best suited to conditions in his particular plant.

SOME RESULTS OF RAPID FIRING

When introducing manganese so largely used in terra cotta slips, it is always best to wash out the fines and to size the material in order to get the most reliable and uniform results. Where calcines are used instead of manganese, they are to be ground fine if a solid body tone is desired, or sized to produce specks.

If the terra cotta is put in the kiln before it is thoroly dried, or if the kilns are fired too rapidly to allow water driven off to escape, gray and buff slips will come from the kiln pinkish or bluish in tone and the color will have a thin uneven appearance. Reds, under the same circumstances, will be very dark or verge on black. Such ware can often be saved by heating it in the dryer and re-spraying while warm, getting plenty of slip on the pieces, and re-burning them in the usual manner.

There is far less manufacturing loss in gray, buff, red, and granite effects than in glazed terra cotta. In making this material, it is best to grind full glazes or colored glazes, un-

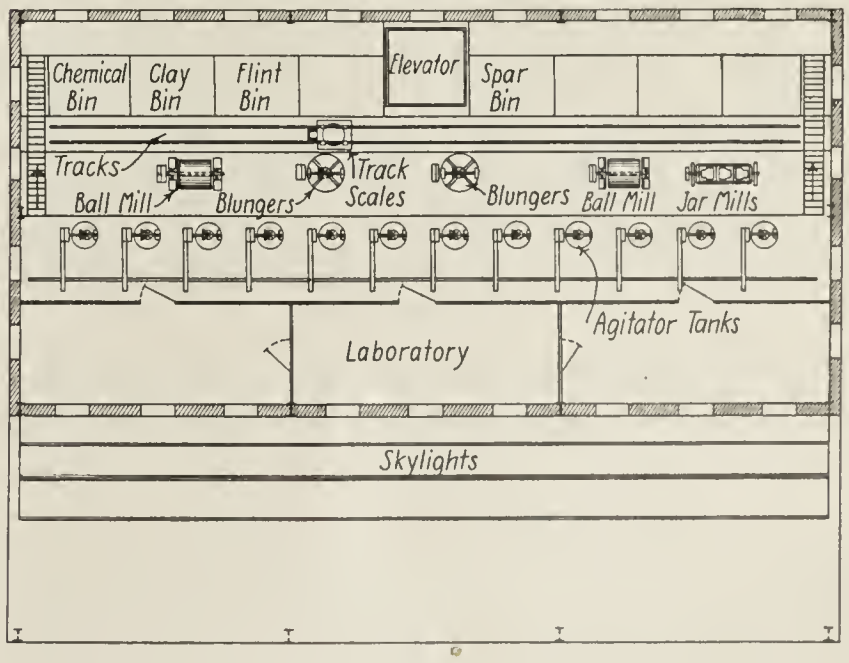


Fig. 3

less a mottled or spotty appearance is desired in colored glazes which is produced by granular ingredients. Certain matt glazes containing little or no color can be successfully prepared by blunging only.

Glazes, after standing a day or two, often have a tendency to get thin and watery, and to settle. This effect is produced by the alkali dissolved from the spar or other glaze ingredients, such as frit, acting upon the clay in the glaze, thereby

deflocculating it and cutting down its power to hold other materials in suspension. A slight addition of some organic acid, such as acetic, will restore the glaze to its original condition or give it its proper body and working qualities.

Glazes used on terra cotta and sprayed with from forty-five to fifty-five pounds of air should gauge from 50° to 65° on the Beaume' scale. The gauge at which the glaze is used, however, depends largely upon conditions and desired results. An underslip or engobe is nearly always used under glazes primarily to give a white coating between body and glaze, to cover minute body defects, and to give the glaze a better hold or firmer contact with the body. Its use is not necessary under gray slips, and scarcely ever is it employed under reds, browns, or buffs. This underslip consists of a flint, spar, clay, and calcium carbonate composition generally, and in some plants this engobe is compounded to burn very hard, while in other cases results have shown that a very soft underslip is best. My experience leads me to believe that a medium hard engobe works the best.

ELIMINATING CRAZING AND SHIVERING

Glaze defects, such as crazing and shivering, are problems for the laboratory to solve, but as a general rule on terra cotta bodies sprayed with the Bristol type of glaze, crazing may be reduced or eliminated by increasing clay and zinc oxide, and shivering corrected by neutralizing soluble salts in the body or by using a less sandy body. Crazing may sometimes result from under fire and, when arising from this source, can be corrected by reburning, care being taken not to reburn to too high a temperature; in the second burn the glaze will not require the same amount of heat action to produce the desired effect as it requires in the original burn.

Blisters, covered by a thin egg shell skin, are caused by too fusible a glaze, too high fire, or the entrance of sulphur gases near the finish of the burn due to a leaky or defective muffle.

Pin-holing is generally due to too rapid steaming in certain parts of the kiln and a settlement and precipitation of moisture on colder pieces of ware. Pin-holes and blisters on the glazed ware are also due to superheated steam, generated too quickly to escape, being acted upon by the sulphur in the flue gases entering the kiln and converted into sulphurous and later sulphuric acid. Very little can be done to save pieces by reglazing which have blistered or pin-holed.

Very small additions of methylene blue or analine red may be added to different glazes to distinguish them or to indicate any preference in kiln location. Only five grams to one hundred pounds of dry glaze mixture will produce a good color. This color, of course, burns out and in no way affects the fired glaze.

CARE NECESSARY IN SPRAYING MANGANESE GLAZES

The elimination of small specks in plain white glazes on the average commercial plant is a difficult problem. Of course, if cobalt blue glazes are used, great care must be exercised in cleaning receptacles and in keeping plain white material away from places where the dust from spraying the blue glaze is likely to settle. Particles of manganese from gray slips, if not sprayed properly, will bounce from the piece and may fall in a can or pail of white glaze or settle on white pieces if they are being sprayed nearby. Magnetic iron, which will produce small spots if left in the glaze, can easily be removed if the glaze, after preparation, is run over a magnet. Iron pipe lines, which are used to carry air to the sprayers, rust inside and deliver small particles of iron rust with the air, causing difficulty with the glaze. Galvanized or brass pipes will overcome this trouble.

In the production of polychrome effects, faience material, scenic reproductions in glaze, and work requiring many colors, the closest technical supervision is necessary. Colors selected for such work are usually taken from plain sample tiles, but when these same colors are used next to each other on the same piece, objectionable chemical reactions are apt to take place, which are costly if not foreseen. A good chrome calcine green, for instance, used next to a white glaze containing zinc oxide or next to a yellow glaze containing iron will burn with a brownish discoloration between the two. In some cases this effect may be beautiful and desired, while in others it may be necessary, in order to dispose of the piece, to dignify it with a title, such as "autumn shade," or some similar name. If this same green glaze comes in close proximity to a white glaze high in tin oxide, a pink line of union results. If such an effect is not desirable, it is up to the chemist to produce a white that will not be affected by adjoining colors. We merely cite this one instance, which has resulted in great loss, for the benefit of those manufacturers who have not arrived at the stage where they can see that technically trained men about the plant are not ornaments or social luxuries, who have not yet realized that they are prerequisites to the production of a satisfactory product and first class dividend producers.

The average ceramist is too engrossed in daily routine to develop a great deal of new material, unless he does it "between times." If more of the detail could be lifted from the shoulders of the plant chemists and they were given more time for research and investigation, effects new, startling, pleasing and (for the average manager) highly profitable would be developed.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912

of "Brick and Clay Record," published Bi-Weekly at Chicago, Ill.....for April 1, 1917.
State of Illinois }
County of Cook } SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Edwin G. Zorn, who, having been duly sworn according to law, deposes and says that he is the Editor of the "Brick and Clay Record," and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:
Publisher: Kenfield-Leach Company.....Chicago, Ill.
Editor: Edwin G. Zorn.....Chicago, Ill.
Managing Editor.....None
General Manager: H. H. Rosenberg.....Chicago, Ill.
Business Manager: David B. Gibson.....Chicago, Ill.

2. That the owners are: (Give names and addresses of individual owners or, if a corporation, give its names and the names and addresses of stockholders owning or holding 1 per cent. or more of the total amount of stock.)
F. B. Cozzens.....445 Plymouth Court, Chicago, Ill.
H. H. Rosenberg.....445 Plymouth Court, Chicago, Ill.
S. J. Leach.....445 Plymouth Court, Chicago, Ill.
L. W. James.....445 Plymouth Court, Chicago, Ill.
F. J. Sauer.....445 Plymouth Court, Chicago, Ill.

3. That the known bondholders, mortagees, and other security holders owning or holding 1 per cent. or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.).....None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

Edwin G. Zorn,
(Signature of editor, publisher, business manager or owner.)
Sworn to and subscribed before me this 19th day of March, 1917.

Anna M. Phillips.
My commission expires Jan. 25th, 1920.

INDUSTRY *to* PAY *for* WAR

Just What You Need to Know About the New Eight Per Cent. Excess Profits Tax

AMERICA'S CALL TO ARMS in the gigantic struggle now under way for the overthrow of autocracy is demanding the backing of wealth as well as of blood.

And industry, as usual, receives the first call to the colors in the shape of a government act of selective conscription that includes every corporation doing business under the Stars and Stripes.

For that reason the new "Excess Profits Tax Law" is one of vital interest to every corporation and partnership whose net income exceeds $5,000 a year.

The gist of the new statute, as to purpose, limitations, application and exemptions, is summarized herewith for the benefit of our readers:

The Law's Name: The Excess Profits Tax Law.

When Approved: Signed by President Wilson, March 3, 1917.

The Purpose: "To provide increased revenue to defray the expenses of the increased appropriations for the army and navy and the extensions of fortifications, and for other purposes."

RETROACTIVE FEATURE

When the Law Goes Into Effect: The law goes into effect immediately and *applies to the period which has elapsed since January* 1, 1917.

The First "Taxable Year": The twelve months ending December 31, 1917, constitute the first taxable year of the new law.

Relation to Individual Corporations' Fiscal Year: Corporations and partnerships will be allowed to fix their own fiscal year, basing their tax from January 1, 1917, upon the net income of that year.

To Whom the Law Applies: (a) "Every corporation and partnership authorized or existing under the laws of the United States or any state, territory or district thereof." (b) Every foreign corporation and partnership doing business in the United States.

To Whom It Does Not Apply: The law exempts (a) labor, agricultural and horticultural organizations. (b) Mutual saving banks not having capital stock represented by shares. (c) "Domestic building and loan associations and corporate banks operated without profit." (d) "Corporations and associations organized and operated exclusively for non-profit-making purposes." (e) *The act exempts all individual incomes of whatever profession, irrespective of their size or definiteness.*

What the Law Demands: A tax of eight per cent. upon all net profits in excess of eight per cent. of capitalization (over and above the first $5,000 profits, which are exempted from taxation). *This in addition to the two per cent. tax upon net income imposed by the Income Tax Law.*

DEFINITIONS

"Corporation": Within the meaning of this act this term includes joint stock companies and associations and insurance companies operated for profit.

"Net Profits": The difference between the gross income of a corporation and the amount remaining after the deduction of: (a) all ordinary and necessary expenses in the maintenance and operation of business and properties; (b) all losses sustained and charged off within the year, not compensated by insurance or otherwise, including a reasonable allowance for exhaustion, wear and tear of property; (c) amount of interest paid within the year on indebtedness, not in excess of the amount of paid up capital stock outstanding at the close of the year; (d) taxes paid within the year imposed by the authority of the United States, state or local governments.

"Capitalization": *The actual capital invested,* that is, (1) actual cash paid in; (2) the actual cash value at the time of payment of assets other than cash paid in, and (3) paid-in or surplus and undivided profits used or employed in the business; *but it does not include money or any property borrowed by the corporation or partnership.*

Bases for Computation: The returns filed in compliance with the provisions of the Income Tax Law will be used by the government in this connection.

Time for Filing Data: The law prescribes that each corporation shall file a detailed statement of actual capital invested, at the same time with the schedule required by the Income Tax Law.

BACKING THE PRESIDENT

Every business man in the country will be interested in the declaration of the fifth annual meeting of the Chamber of Commerce of the United States recently held in Washington.

Two resolutions of that body, representing more than 375,000 firms and corporations, voice the patriotic devotion of American business to the standards of the republic, and state in firm, but respectful spirit, the reason why the new Excess Profits Tax Law should be amended at the earliest date in order to deal fairly and justly with professional as well as industrial incomes.

These two resolutions are as follows:

"RESOLVED, That the Chamber of Commerce of the United States, in convention assembled, voicing the sentiment of the business men of every state in the Union, expresses to the President of the United States its profound appreciation of the gravity of the international difficulties which now confront the Nation and solemnly pledges them to stand as one behind him in patriotic purpose, whatever the eventuality."

AMERICAN INDUSTRIES PROTEST

The second resolution, which follows, while adopted prior to the passage of the Excess Profits Tax Law, must still express the convictions of the body whose declaration it was, as the act in question as adopted by Congress and approved by the President, underwent no material change. The resolution follows:

"RESOLVED, That the Chamber of Commerce of the United States of America reaffirms its devotion to the program of preparedness which it has approved by vote of its constituent members thru Referendum No. 15 and thru resolutions adopted in Annual Meeting and further pledges the support of this body to any just and rea-

sonable measures of taxation which the Government may see fit to adopt under such a program—but while reaffirming its devotion to this policy, it feels compelled to protest against the inequitable and discriminatory methods of taxation proposed in the bill known as H. R. 20573 providing for a tax on excess profits of corporation and co-partnerships; and be it further

"RESOLVED, That while fully recognizing the necessity of providing increased revenues to carry out wise and patriotic measures for the adequate defense of our country, we would respectfully suggest that any bill passed by Congress to accomplish these purposes should be along lines of *fairness to all interests in the country so that every citizen should pay his just shares of the tax.*"

NEW YORK'S PROGRAM—BUILDING *as* USUAL

"WAR! WAR! EVERYWHERE, and no place for the peace dove to light. That's the situation in a nut shell," said a New York builder the other day, and yet the building business is going on about the same as usual, altho here and there one finds the prospective builder holding back. On every hand men and boys are being called to the colors, and women are playing their part in supporting the president and the "war for humanity." All of which produces a mighty lively condition in New York and in the production centers adjacent to the big city. So far, calls to military service have not had much effect upon brickmaking plants, cement mills, clay mines, and similar enterprises, but, as one manufacturer said, "the munitions plants in 1914 and 1915 made such inroads on labor that now there is little more they can do to upset the business." With a call for volunteers already here, and conscription on its way, the building trades fully expect to furnish their quota of men. It is expected that southern negroes may be induced to take the places of the unskilled workmen who answer the summons, but the great difficulty that may arise will be the replacing of skilled mechanics and laborers who may be called.

But patriotism is running strong and no man has been heard to make any complaint on this score. The feeling of loyalty and devotion to Uncle Sam is paramount. Nobody is finding fault because the business may produce defenders of America and human rights. But there are things to worry the manufacturer. There is a seriously underbuilt market and a free and strong field for operations opening far into the future. Price advances long since ceased to frighten operators. The high cost of building is no longer a bug-bear in the eye of the prospective investor in realty. Apartment house hunters unable to find accommodation on Manhattan Island are taking all available space in the Bronx, Long Island, and suburban New Jersey. This is stimulating business in those sections.

MANUFACTURERS HESITATE TO RAISE PRICES

As one authority states: "Building material manufacturers realize the condition well, but it is a question with them of finding men to even maintain the output schedules they are operating under right now. Merely advancing the prices is not solving the problem, yet they hesitate to put them any higher because of the precedents such action creates. Extreme high and low prices are always used barometrically, and they make unfavorable comparisons when analyzed in later years."

Some leading commodities are finding their costs today more than thirty per cent. above the manufacturing cost of November, 1916, while prices advanced for those same commodities less than twenty per cent. in every instance save two, where the advance has been twenty-eight and forty per cent. The Dow Building Service declares that the strain cannot be borne much longer.

Hudson River common brick offers a fair example. Last November the price for wholesale lots was $8.75 to $9 a thousand. It is said it cost the manufacturer about $6.60 to manufacture a thousand brick and load them on the barges. The New York agent received twenty-five cents for selling the brick, the towing company got $1.10 a thousand for its service, and the manufacturer got the large sum of eighty cents a thousand for his trouble. At that time he was able to buy coal at $4.50 a ton, but today he pays from $5.50 to $8. On April 1 the towing charges were increased to $1.30 a thousand. Add to this the fifty per cent. increase in the cost of lumber, used for kiln boarding, and consider the increased wages for barge captains and crews and loaders and it will be very readily understood why $10 brick have become so popular in New York. For the first time in recent local history the brick manufacturer is obliged to grade his brick on a five-cent scale and, as a result, on April 16, the price went to $10.25 a thousand. Even so, every brick that comes into the market has a buyer and it is beginning to look as tho they cannot come too fast for the dealers in Manhattan.

The story of brick applies with equal force and about the same way to lumber, stone, cement, metal, asphaltum, lime, plaster, steel and every other building material except possible gravel and sand. With winter over and road work beginning, even those materials are expected to hit the advance trail before long. Linseed oil has gone to $1.12 a gallon and it is expected to reach $1.20. Laborers in the quarries have asked for and are going to get higher wages in a few days and roofing slate is going up accordingly.

WAR STEP BARRIER TO DECREASED PRICES

Now that the United States has entered the war, students of the building situation can conceive of no possibility of a decrease in prices of building materials unless, of course, there should be a tie-up in the building development of the country. Happily, this does not seem to be at all probable. To begin with, the country is rich and those with funds feel that always real estate is a safe investment, but particularly so in war times. And then on the other hand, the demand for space is growing constantly and it must be met. Therefore, conservative business men can see no cause for alarm. Neither can they see any reason for expecting a reduction in prices of building materials. It is pretty generally agreed, on the other hand, that some commodities will go higher.

Regardless of the duration of the war for America, it is felt by some that a new standard of prices has been fixed as the result of the world war. It is argued that the chief factor responsible for high prices is the high cost of labor and labor being unlikely to take smaller wages upon the return of peace, capital will be as unlikely to go back to the price standards prevailing before the war. This does not mean, of course, that there will not

be readjustments, but it does indicate that it is as profitable to build now as it will be after the war—that nothing can be gained by putting off construction indefinitely. Considering this, architects estimating new projects for owners find the difference in cost of basic materials between ten and one hundred per cent. above the cost of a year ago. The future of building is, of course, uncertain in some respects, but the all-important thing to consider is the natural growth which is so substantial that it cannot be stopped and can scarcely be checked to any alarming degree.

* * *

"Cream City" Dealers Pressed for Cars

"If we could only get the cars!" This is the cry of every brick dealer in Milwaukee, Wis., just now. With their books filled with orders, they are spending their time explaining to customers that deliveries are almost impossible because of the freight situation. Thomas Dever, J. G. Moritz, J. J. McCoy, and Edward Whitnall, Milwaukee sales managers, agree that business was never better, yet their hands are tied by the shortage of cars in which to bring the brick from the factories.

"Wisconsin brick men are getting a late start this year because of the unusually cold winter. Last season's work is just being finished up now and the orders for the coming season are piling up," declared J. G. Moritz, manager of the Milwaukee Building Supply Company. "We are making no promises and whether or not we will be able to fill half the orders that are on our books remains to be seen."

"I have just returned from St. Louis," said J. J. McCoy, of the Wisconsin Face and Fire Brick Company, Milwaukee, where I have been chasing up cars. We could smash all records if we could just get the brick from the factories. Some of the biggest orders we have had for years are hanging by a thread because we cannot get the brick delivered."

"The brick trade is about as hard hit by the car situation as any other line of business that I know of," declared Thomas Dever, of Ricketson and Schwarz, "Unless conditions improve within a very short time, it will raise havoc with the year's business. The orders are on our books, but we simply can't fill them."

* * *

J. R. Marker, commissioner of the Ohio Paving Brick Manufacturers' Association, has succeeded in getting the first brick road in Michigan. Recently the Ohio association took over a greater part of Michigan and several field men have been working towards changing sentiment from macadam to brick construction. The first brick road is to be laid in Calhoun County and is approximately six miles in length, requiring 2,500,000 brick. The brick will be furnished by the Metropolitan Paving Brick Company, of Canton, Ohio.

A SERVICE RECORD *of* OVER FIFTY YEARS



INTERESTING EXAMPLES of the everlasting qualities of burned clay products are continually brought to light, but it is doubtful if many of these relics of the early days of the industry in the Middle-West hold more of interest than the drain tile shown in the accompanying illustration, which was turned by hand on a potter's wheel more than a half-century ago.

Fifty-eight years ago, M. Ohnhaus operated a small clayworking plant in Whitewater, Wis., working the same deposit of clay that the Whitewater Brick and Tile Company uses to-day in the manufacture of its products. Recently, J. Werner, of the Whitewater Company, learned that Mr. Ohnhaus had laid some tile in 1859 to drain the water from the ground on which his plant was located, into a nearby pond. It occurred to officers of this company that if a sample of the tile made by Mr. Ohnhaus in those early days could be located, it would tell the story of the wearing ability and permanency of burned clay better than a volume of affidavits or expert tests.

Upon being questioned regarding the location of the tile he had laid in '59, Mr. Ohnhaus, who is now ninety-two years of age, volunteered to go down to the site of his old plant and point out where he believed the "string" to be. He was accompanied by his son John, who protested that the place was fully twenty feet away from that indicated by the senior. A pick and shovel, however, soon revealed the fact that the tile lay but three inches from the place pointed out by the venerable old clayworker, and about four feet underground.

Five of the tile which Mr. Ohnhaus had turned out by hand and burned under extreme difficulty were removed from their ancient burial place. The accompanying illustration shows one of these tile, the picture being sufficiently large to show the excellent condition of the product after a period of service which extended over fifty-five years. It is still white, as is characteristic of well burned Whitewater clay, the frost has not chipped it nor has heaving ground broken it. It rings like a bell and there is absolutely no sign of deterioration. It is a silent, powerful testimonial of the eminent suitability of burned clay tile for drainage.

The GENERAL MANAGER *has a conference with the* SALES MANAGER

He Proposes a Revolutionary Policy in the Acceptance of Orders and Urges Good Treatment for Old Customers

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company, Uniontown, Pa.

"MR. BALDWIN, when I was superintendent of the Ardent plant, I received production orders right along, but it never occurred to me to wonder just how they were secured and handled. How is the sales end of this corporation handled?"

"Just at present it does *not* require very much handling. In the past, we kept in touch with present and prospective customers by means of personal correspondence, circular letters covering points of interest to all or at least to many customers, and then, of course, we had several salesmen going over the territory.

"We quoted on all the inquiries we could secure, turned over to the production department the orders we received, and when we did not run directly on orders we made up standard brick and shapes for stock."

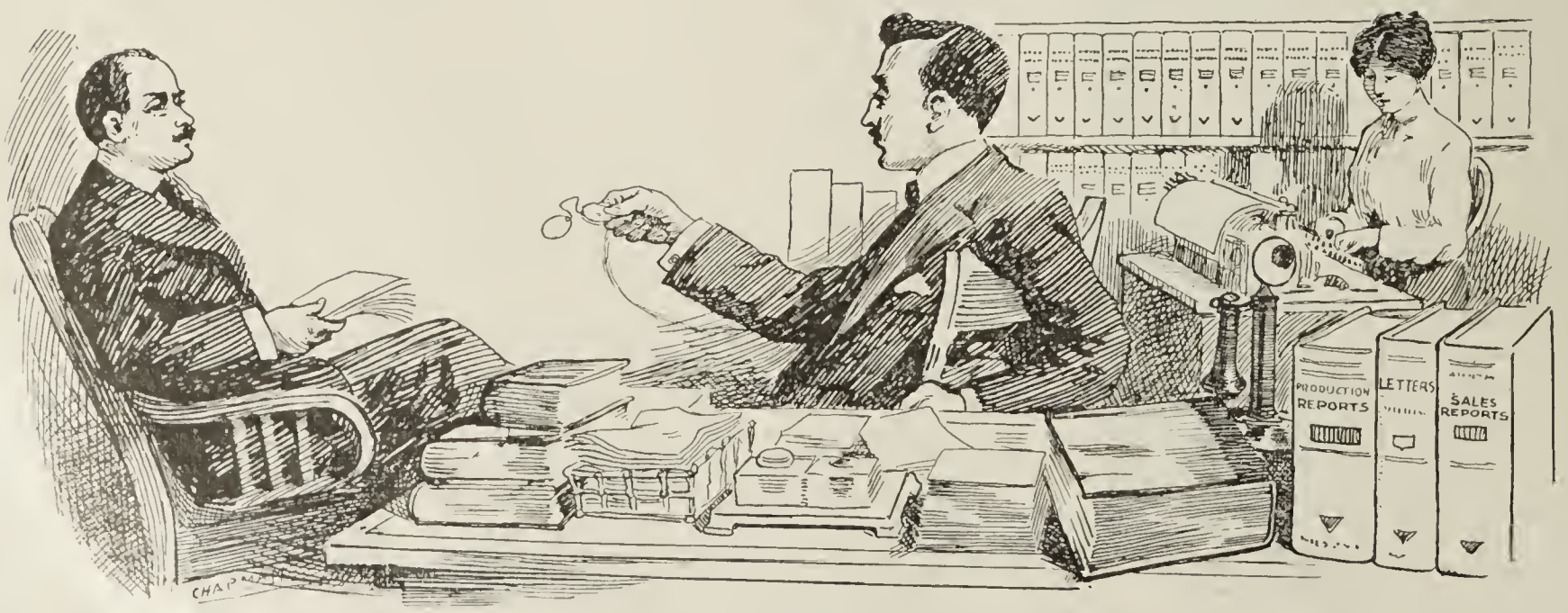
"What is our sales force doing now?"

"It is still on the road, keeping as closely as ever in touch with our customers, seeing that each is being taken care of properly. Just when we are busy is the very time one is most likely to overlook a just grievance, so we are emphasizing more than ever the importance of service, and the avoiding of mistakes of any kind."

INQUIRIES FROM NEW SOURCES

"Speaking of the many inquiries we are now receiving—inquiries as I understand, from firms of whom we have never even heard before—what is being done with them?"

"We are handling them just as before, except that deliveries are becoming more and more distant. We quote a fair price and state the earliest delivery we can safely promise, and then, in most cases, if the delivery is satisfactory, we get the order. If some other firm can make a better delivery, they most likely get the order. In this



But Where We Lose Out, How Would It Do to Keep Such Inquiries in a Separate Open File?

case, we simply file the correspondence in our permanent files, and the transaction is closed."

"In case we get the order, the firm making the inquiry is on our books as a customer," commented the general manager. "But where we lose out, how would it do to keep such inquiries in a separate open file?"

"Fine," responded Baldwin. "We will thus have a good list of prospects and a line on their requirements, for future use. For example, here we are today referring a customer to the secretary for a list of firms which make sleeves and nozzles, which we do not manufacture; at times they also use our products, so we will thus be in touch with them when they need something in our particular line. Here is a firm wanting a million red brick, which we happen to know a competitor has in stock, so we are referring the inquiry to our neighbor. This ought to establish a better connection with the firm than if we were to simply reply that we did not make red brick, and let them find out for themselves who could supply them."

"You say we are not in a position to make early deliveries. How far are we sold up?"

Mr. Baldwin smiled with considerable satisfaction as he replied: "From four to six months."

THE SALES MANAGER GETS A SHOCK

The general manager did not share in the smile.

"This naturally gives the sales department a pleasing sense of security, but if in response to each inquiry the earliest possible delivery is stated, and the orders are routed thru the plant in turn, as fairness requires, then instead of natural selection and the survival of the fittest, we are simply being operated by clock work, so far as routing the orders are concerned. First come, first served, like a barber shop. Your turn next."

"How else could we manage?" asked Baldwin, in surprise.

"As I understand present conditions, if a profitable order were offered us, on condition that delivery be made in a month or six weeks, we could not undertake it; we are tied up with orders which may be less desirable. You have heard the old story of the man who could not read and who began at the top of the bill of fare, pointing to each item in turn, with the result that he had consumed several varieties of soup before he came to a gorgeous planked steak with everything imaginable to accompany it. He looked at it sadly and sighed, 'Here's the chance of my life, and I'm full of soup!' Let us pass up a lot of these inquiries and give other manufacturers a chance to get filled up. Then let us catch up with our orders to within five or six weeks, at any rate. In the meantime, we can determine what stock shapes are most profitable, what quantity of these we should keep making up in advance of our orders, and consider this margin as imperative as any orders at present on our books. If we have orders for our output for four weeks to come, and it will take another four weeks to bring up our reserve of standard stock shapes which are most desirable, then we should not accept any other business for delivery in less than eight weeks. How does this strike you?"

"It looks all right to me. We cannot sell more than we are able to make, anyway, and it should be as easy to keep only six weeks ahead of production as to keep six months ahead. But in case of a slump in business, we would find ourselves out of the running, while our competitors would still have orders to keep them running for a few months to come."

PREPAREDNESS IN THE SALES DEPARTMENT

"That will be good exercise for the sales department, and we will be a few months ahead of our friends in the habit of hustling for orders. It will be like a prize fight with us in training for the match longer than our competitors will have been when the show-down comes."

"This will, of course, mean declining orders right and left, but at the same time we will profit by having coming thru the kilns stock shapes for prompter shipment. But what shall we do in the case of regular customers who have in the past been buying from us everything they required in our line?"

"We should by all means not only accept their orders, but give them the preference in case it should mean selling the output to them for a solid year ahead. Where people have been buying from us when they could have bought elsewhere, we must reciprocate now by filling their orders when we also might ship elsewhere. When business slumps, they will remember that we took care of their orders when business was plentiful."



When a Manufacturer Puts Up Canned Tomatoes Without Using Artificial Coloring or Preservatives, He Does Not Rest There and Hope That the Consumers Will Find This Out for Themselves. He Advertises His Methods

"I'm sure I hope so. But there's one concern which received in the past every consideration from us. We carried their overdue account for months, shipped promptly, and notified them when they paid their account, and yet when they were still owing us a good sized overdue account and were indebted to us for other considerations, they began placing their orders elsewhere. What explanation have you for that?"

"There isn't any explanation, except a low standard of business ethics. But such a concern soon becomes known to the trade, and then it is at a disadvantage compared with its competitors. Naturally, other companies receive a preference when it comes to taking care of their requirements. Sharp business practices afford the practitioner neither pleasure nor profit.

"But with regard to our promises, what has been our policy in this respect?"

"We always aim to make promises which we can keep, calculating carefully what we can expect to accomplish,

and then adding a margin of safety, as they say in engineering circles."

WHY HIDE YOUR LIGHT UNDER A BUSHEL?

"That is right so far as it goes. But when we have made a shipment on or before the time promised, we should call attention to this fact. When a manufacturer puts up canned tomatoes without using artificial coloring or preservatives, he does not rest there and hope that the consumers will find this out for themselves. He advertises his methods. We also should advertise our processes. Some newspapers are always 'viewing with alarm' while others are always 'pointing with pride.' We want to get into the latter class."

"What if we fall down on a promise?"

"Let us make a note of each such failure, so that it can be investigated at our conferences, and if possible prevent its recurrence. If not possible to do this with certainty, take this circumstance into account in making promises in the future."

(In Next Issue: The General Manager Gets Hung Up on a Cost Finding Problem.)

AMONG *the* POTTERIES

If it were not for the shortage of raw materials, the pottery manufacturer would have no complaint to make at the present time. Orders are abundant, factory operation is more satisfactory, and the railroad situation is somewhat improved. Few, if any, potters have to seek orders, and workmen seem to be making up for the time they lost during the winter. Railroads are once more fulfilling some of their promises, and taken as a whole, the situation is much better than it has been for months. Regarding the future, those in touch with the situation do not anticipate any disturbances to interfere with capacity operations.

BROTHERHOOD PREPARES FOR CONVENTION

By the end of the month the local unions of the National Brotherhood of Operative Potters will have completed all resolutions which will be presented before the annual convention. The annual gathering this year will be held as usual at Atlantic City. When all resolutions are filed with the National headquarters at East Liverpool, Ohio, the entire list will be printed in book form, and then distributed among the craft. While it is announced that certain branches of the trade will ask for an increase in wages, officials of the Brotherhood, in a position to know, declare that there will be no general request made to the manufacturers for a straight increase in all branches.

SECRET OF JAPAN'S SUCCESS IN AMERICAN MARKET

One of the reasons why Japan is so successful in the American earthenware market is because it is making things for America which America wants. Recently the head of one of the most important porcelain industries in Japan came to this country for the sole purpose of looking over the situation and deciding on just what changes were necessary in the company's lines to meet the American demand. It is a good way to get business, and one which countries other than Japan have used with profit to themselves and satisfaction to their customers.

POTTERY EMPLOYES HOLD PATRIOTIC CELEBRATION

Employes of the H. R. Wyllie China Company, Huntington, W. Va., recently united in a patriotic ceremonial flag raising and now claim their plant has the tallest flag pole in the city, the top of the pole being eighty-six feet from the ground. Other flags in the city are higher, but these are mounted on tops of buildings. The entire working force of the factory assembled for the celebration. A quartet sang "The Star Spangled Banner" and when the chorus was reached the entire assemblage joined in as "Old Glory" was raised and fluttered in the breeze. The flag is ten feet high and eighteen feet long. The Wyllie Company has gone in for the manufacture of white china for decorating purposes, and is turning out goods which will compare favorably with imported ware. Vase shapes are being made for the present, but extensive additions will be made later.

A company of infantry is being formed among the working potters in the East Liverpool, Ohio, territory and drilling is scheduled nightly. This company will be offered to the government as soon as it becomes proficient. Robert T. Hall, now president of the Hall China Company, was first lieutenant, and George O. Anderson, now officially connected with the American Porcelain Company, was second lieutenant of Company E, of the Eighth Ohio Volunteer Infantry, from East Liverpool, which saw service in Cuba during the Spanish-American war.

Patriotism in all general ware potteries in the Ohio Valley and Ohio districts is running wild. Over the clay benches small flags are being placed at the noon hour, and daily there is a speech on patriotism and a national air sung either by a quartette or a chorus of mixed voices. Firms are placing large flags on all plants, and in the East Liverpool district every pottery plant is flying a flag of large dimensions.

The Bellmark Company, New York Avenue, Trenton, N. J., manufacturer of sanitary earthenware, has filed articles of incorporation with a capital of $150,000.

The Florentine Pottery Company, Chillicothe, Ohio, is contemplating building a new sanitary plant in Cambridge, Ohio.

Prominent Potter Passes On

Murrell Dobbins, president of the Camden (N. J.) Pottery Company, died at his residence, 1811 Arch St., Philadelphia, Pa., on April 6. Mr. Dobbins, who was seventy-four years of age, was formerly engaged in the brick manufacturing business at Philadelphia. About seventeen years ago, after retiring from the brick business, Mr. Dobbins organized the Camden Pottery Company and entered into the manufacture of plumbers' sanitary earthenware, serving as president of that concern since its organization. In addition to the above, Mr. Dobbins was formerly president of the Third National Bank of Philadelphia; president of the Board of Inspection of the Eastern Penitentiary; city treasurer of Philadelphia during John E. Reyburn's administration, and also served on the Board of Education and is known as the "Father" of Philadelphia's trade schools. A man of wide business experience, conscientious and ever striving for the best, his loss will be keenly felt by wide circle of friends. His son, T. Munroe Dobbins, is secretary and treasurer of the Camden Pottery Company.

REFRACTORIES *and* RAILWAYS

An Address Before the Canadian Railway Club on March 13, 1917

By John D. Ramsay

President and General Manager, Elk Fire Brick Company, St. Marys, Pa.

SPEAKING for myself and the company of which I have the honor of being the chief executive, I wish to say we are highly honored by having your good organization request us to prepare a paper on the subject assigned to me. I will use no technical terms applying to the industry, and will endeavor to make myself thoroly understood; nor will I undertake the use of any flowery phrases to develop the points.

In this subject I will try to show how closely allied are the refractory industries and the railway systems of the world, and the importance of each to the other. I may or may not bring out any new thoughts on this matter, but will put my best efforts in that direction and be as brief as possible. To discuss the topic fully would require volumes of data and consume too much of your valuable time.

Webster defines a "refractory" as something "difficult of fusion," "not easily yielding to the force of heat," and in this case I will discuss some of such materials. Therefore, we are looking into materials used for lining chambers where heat is produced. Most, if not all of such, have to be prepared from suitable raw material, as they seldom if ever exist in natural state.

FUNCTIONS OF DIFFERENT REFRACTORIES

In practically all cases the raw materials, as found in different sections, are made into what is known as "brick," in various sizes and designs. The classes of such are chrome brick, the basis of which is chrome ore; magnesite brick, made of magnesite; silica brick, made of ganister rock and bonded with lime, and last but not least, fire brick, made of fire clay. These comprise practically all of the refractories in general use to-day, altho some others are used in a small way, but they represent such a small percentage of the total that I will omit them from this paper.

Fire brick are most commonly known and are used in a greater variety of places than any of the others, altho silica brick are meeting successfully new conditions each day and their production increases yearly in a larger percentage than any of its relatives.

Chrome and magnesite brick are used only in special work, and largely in the production of steel, but their cost is so high as to retard the development of the line to any extent.

The raw material used in the manufacture of silica brick occurs in large quantities in Pennsylvania and the Middle West and is a form of rock, usually taken from the surface of mountains, but frequently quarried.

LOCATION OF FIRE CLAY DEPOSITS

The clay used in making fire brick occurs in a greater number of places in the United States and a certain grade is found in British Columbia, and still another one in Nova Scotia. The largest producer of all of the United States is Pennsylvania, but large quantities are found in Ohio, Kentucky, Missouri, Maryland, New Jersey, Illinois, Alabama, Texas and Colorado. Small deposits are found in other states, but the quality and quantity of such have not been developed to any extent. It is mostly mined by tunnels similar to the mining of coal, altho in some districts the cover is stripped and the clay is quarried.

The logical place to locate a plant for the manufacture of either fire brick or silica brick is where the raw material is found, as it is too expensive to transport same any distance. Therefore, the districts mentioned above will indicate where nearly all these two grades of refractories are made in North America. Western Pennsylvania is a much larger producing district than any other.

STATISTICS OF INTEREST

More than $100,000,000 is invested in this industry in the United States alone, and the estimated tonnage produced by such investment is approximately 4,000,000 tons. The average freight received by railroad companies in North America from such shipments is more than two dollars per net ton, or $8,000,000. It will be seen at a glance that the refractory industry contributes in substantial proportion to the tonnage and receipts of the railway corporations. This, of course, is the only important direct connection between the two different capitalizations. I will endeavor later to show the importance of each to the other indirectly.

Fire brick are always used where heat is developed or where any substance is refined or purified. They are of necessity used in ovens for baking bread, tanning leather for shoes, developing power for making everything you eat (except meat and vegetables), wear, or have in your home. They line the furnaces of boilers making your electric light, and the steam heating plant which keeps you warm. They are the very heart of the generators which make your gas and in many cases they even line the stove that cooks your meals and warms your toes.

So much for the direct benefits to you and me, but last and not least, there would be no railways if it was not for refractories of some kind. Why? Well, I will tell you.

RAILROADS DEPENDENT UPON REFRACTORIES

They line the ovens making the coke, which melts the ore to iron, and they line the furnace which performs such service. They are the sole linings for furnaces to reduce the iron to make steel rails, spikes, frogs, switches, axles, and every part of a steel car or locomotive. Without them no steel could be made to build your bridges or mammoth office buildings and terminals. It will readily be seen that refractories play an important part in railway construction and operation. Furthermore, most of the tonnage you haul such as iron, steel, coke, cement, lime, brick, sewer pipe and nearly all material used in construction is prepared in furnaces or kilns, which must be lined with one or another kind of refractories. You will readily see that they are an

important factor in assisting in the production of a vast tonnage for transportation companies.

We can easily agree, however, that the railroads must first develop these industries before there is any demand for our goods and without such development our plants would die. We, therefore, lean on the shoulders of the mighty railroads and say "Develop other industries and you will develop ours."

In conclusion, I wish to say that it is my honest conviction that next to the great railway systems our industry is the most important factor in development, upbuilding and welfare of every community.

* * *

Tests On Clay Materials Available in Illinois Coal Mines

IN A VERY VALUABLE BULLETIN entitled "Tests On Clay Materials Available in Illinois Coal Mines," and written by R. T. Stull and R. K. Hursch, the Illinois State Geological Survey, working in cooperation with the United States Bureau of Mines and the Department of Ceramic Engineering of the University of Illinois, gives the results of tests made on one hundred and six samples of clay taken from coal mines of Illinois.

In summarizing the results of these tests, the introduction of the bulletin states that "forty-nine samples proved to be worthless, five were of questionable value, and fifty-two were found adapted to the manufacture of a number of clay products. Common brick can be made from the material represented by fifty-two counties; thirty-nine were usable for face brick; twenty-nine for hollow ware; six for paving brick; six for fireproofing; one for enamel brick and terra cotta; two for stone ware and sewer pipe, and two for No. 2 fire brick. These materials were not from existing clay pits or clay mines, but from coal mines where the clay materials are not now utilized."

The publication, which contains 130 pages and sixty-two illustrations, and which embodies the results of the last work accomplished by Mr. Stull before he resigned as director of the Ceramic Department at the University of Illinois, contains in the first chapter some very valuable general information about the manufacture of clay products.

COST OF BUILDING MODERN PLANT

Under the head of "General Information," the bulletin takes up the cost of constructing a modern plant and states that "under most favorable conditions of low cost of raw material and labor, it is not advisable to install a modern brick plant equipped with a permanent dryer and kilns for a daily capacity of less than 10,000 to 15,000 brick. An exception to this is made where the clay produces a high-grade product commanding a high market price. The cost of building a modern plant is a variable factor governed by local conditions and by the kind of material and equipment used in its construction. A well-known brick works engineer has said that it requires approximately as many dollars to build a modern brick plant as is the daily capacity of the plant in brick. It would, therefore, require approximately $15,000 to build a modern plant with a daily capacity of 15,000 brick. This rule is by no means rigid and may be regarded as merely an approximate guide."

Calling attention to the necessity for determining the supply of clay at hand before proceeding with the construction of the plant, the bulletin makes a statement that "it is not advisable to build a modern plant unless there is available sufficient clay of satisfactory quality to continue the plant in operation for a period of more than ten years. To make a thousand brick of standard American size requires approximately two cubic yards of clay. A plant making 15,000 brick per day would require 9,000 cubic yards, or approximately 13,500 tons of clay per year of three hundred working days."

THE VALUE OF LABORATORY TESTS

From this point, the publication takes up the importance of very exhaustive preliminary tests of the qualities of available clay before taking steps to utilize the material in the manufacture of burned clay products, and outlines the value of a laboratory test in the determination of these qualities. The subject of the value of the laboratory test in indicating clearly the commercial possibilities of a clay has always been of a debatable nature, and in discussing this topic, the authors of the bulletin state: "It is a well known fact that laboratory tests on small-sized samples do not furnish conclusive evidence as to the practical value of a clay for manufacturing purposes. The reason for this lies in the fact that factory conditions cannot be duplicated in the laboratory. Nevertheless, the laboratory tests are essential in that they acquaint one with the physical behavior of clays and point out whether they have commercial possibilities or not. If a clay is so inherently bad as to be an impossible raw material for the manufacture of clay wares, this will be indicated by the laboratory tests. The laboratory tests will also show whether a clay is safe for making vitrified ware and will show to what class of ware the clay is best suited.

"If the laboratory tests indicate that a clay is capable of producing a desirable product without developing serious difficulties which might be encountered during the process of manufacture, then the results from the laboratory would warrant the further testing of the clay in a large enough quantity to approach factory conditions as closely as possible."

PREPARING AND BURNING CHARACTERISTICS OUTLINED

The remainder of the first part of the bulletin is given over to a treatment of the characteristics which clays must possess to be adapted to the manufacture of different burned clay products, such as common and face brick, paving brick, hollow ware and fireproofing, and to the behavior of clays during burning. This last division is of especial value, since it outlines the difficulties encountered in burning a clay product, from what sources these troubles arise, and the best course to follow in their prevention, and covers, in a brief manner, the burning characteristics which are required by different products.

An explanation is then given of the manner in which the coal-mine samples were prepared and how the slaking, oxidation, tempering, shrinkage, burning and porosity tests were conducted.

By far the greater part of the bulletin, however, is taken up by a complete description of the samples tested, the mines from which they were taken, and the manner in which they stood up under the tests.

HOW TO OBTAIN BULLETIN

Undoubtedly, the bulletin is a very valuable addition to clayworking literature and covers a subject of vital interest to many manufacturers, namely, that of the operation of a clay products plant in conjunction with a coal mine. It is argued that it is cheaper to produce a clay incidental to coal mining than it is to mine it separately, or dig it at surface pits, and that the cold winter months

would have no effect upon the operation of a plant which obtained its supply of clay from an underground mine. Another saving is seen in the fact that the cost of fuel would be appreciably lowered since the material would be right at the plant. Consequently, the report of the work carried on in investigating the possibilities of the clays available in Illinois coal mines by the State Geological Survey, the United States Bureau of Mines, and the Department of Ceramic Engineering at the University of Illinois is timely and of value. It may be obtained upon payment of postage, at the one-pound rate, to the director, State Geological Survey, Urbana, Ill.

STRAWS *that* SHOW *the* WIND

Brief Paragraphs from Many Points, Indicating the Market's Trend in the Light of Building Activity

CONTRADICTORY to the prevailing opinion that the mercury in the building barometer is shooting continually upward, are the comparative figures showing the value of constructional work during the first three months of 1917 and the last and first three months of 1916. During the first period mentioned, the first three months of 1917, figures show that out of a total of 106 cities in the United States, the cost of all construction work aggregated $186,427,300, while the value of building operations during the second period, the last three months of 1916, amounted to $223,407,482 and that of the last period mentioned, the first three months of 1916 reached a total of $188,136,298. It is very easily seen, therefore, that quite an appreciable reduction in the amount of national building has taken place, not only when compared to the last three months of 1916, but even when lined up with the corresponding period of last year.

As compared with the first three months of 1916, New York City (including all its boroughs) fell off nearly $3,500,000 in the value of its building since January 1, of this year; similarly Chicago shows a decrease of nearly $7,000,000; Milwaukee, Minneapolis and Pittsburgh also show material losses. On the other hand, advance figures are noted for Boston, Cleveland, Cincinnati, Detroit, Kansas City, Los Angeles, Philadelphia, St. Louis and several other places.

The following table shows the value of three months' building operations in thirty-three of the best building sections in the country during the first three months of this year and last. Placing on one side of the balance the extravagantly optimistic predictions of building interests regarding the work that will be projected during the next three months, and on the other side the trend of development as reflected in this table, what is to be expected for the next three months seems to be enigmatical.

	First Quarter 1917	First Quarter 1916
Akron, Ohio	$ 3,282,484	$ 1,438,720
Baltimore, Md	2,026,442	3,691,584
Birmingham, Ala	j 498,355	613,002
Boston, Mass	13,456,000	12,858,000
Buffalo, N. Y	1,334,000	2,020,000
Canton, Ohio	642,025	957,600
Chicago, Ill	19,985,250	26,929,500
Cleveland, Ohio	6,146,530	4,934,085
Cincinnati, Ohio	2,677,960	1,990,515
Columbus, Ohio	931,920	1,406,575
Dayton, Ohio	2,295,521	571,625
Detroit, Mich	10,273,290	7,844,155
Erie, Pa	654,784	422,426
Grand Rapids, Mich	468,995	850,215
Hartford, Conn	2,729,792	1,213,918
Kansas City, Mo	2,984,760	2,075,955
Los Angeles, Cal	7,271,713	4,071,837
Louisville, Ky	505,770	1,572,590
Memphis, Tenn	844,785	698,425
Milwaukee, Wis	2,310,615	4,043,785
Minneapolis, Minn	1,293,680	2,797,105
New York and Boros	35,943,193	39,408,959
Oakland, Cal	1,239,668	1,497,424
Philadelphia, Pa	9,673,370	6,064,452
Pittsburgh, Pa	2,191,179	3,424,242
Richmond, Va	1,650,463	1,267,219
Rochester, N. Y	1,366,630	2,034,182
San Francisco, Cal	4,828,419	4,816,794
Seattle, Wash	1,718,645	1,570,440
St. Louis, Mo	4,482,529	3,606,306
St. Paul, Minn	995,489	1,914,344
Toledo, Ohio	2,569,509	2,284,151
Youngstown, Ohio	748,875	358,422

Permits taken out for new construction during March, according to figures obtained from the building departments of one hundred leading cities in the United States, amounted to $76,211,963, an increase of 2.7 per cent., as compared with the corresponding month a year ago. The March total, while well above the average for the same period in previous years, indicates that there has been a considerable falling off in the volume of operations, due to the rise in prices of all kinds of materials, difficulty in obtaining supplies and the scarcity and advanced cost of labor.

The permits granted in New York City called for the expenditure of $12,353,422, a decrease of 9.5 per cent. from those of the same month in 1916. The falling off in Manhattan and Brooklyn was only nominal, and some gain occurred in Richmond, but quite a substantial contraction appeared in the Bronx and Queens boroughs. Outside the metropolis there were very large increases at some points and unusually sharp decreases at others, yet sixty centers reported larger totals than last year, and the aggregate for the ninety-nine cities was $63,858,541, an expansion of 2.7 per cent. over the same month a year ago. Gains were most pronounced at Akron, Boston, Cincinnati, Dallas, Detroit, Duluth, Fort Wayne, Fort Worth, Hartford, Jersey City, Kansas City, Mo., Milwaukee, Paterson, San Francisco, Springfield, Mass., and Wichita. On the other hand, decreases of considerable size occurred at Bridgeport, Buffalo, Grand Rapids, Minneapolis, Nashville, New Bedford, New Haven, Newark, Norfolk, Oakland, Philadelphia, Pittsburgh, St. Louis, St. Paul, and Washington.

Building permits issued during March showed a small falling off in Pacific Coast business, as far as the cities were concerned, Oakland being the only case where a gain was registered over the previous year's total.

* * *

A distinct slackening is noted for the last part of the month in the brick and tile trade in the Louisville section. It is not a let-down, but apparently a period of semi-suspension. Building projects are being delayed until the promoters can determine the exact status of the market. A large amount of business is being done in common brick and hollow tile lines,—in fact, what is reported to be an almost oversold condition exists,—but the face brick business is quieter. While but few large orders are developing, there are numerous orders for lots of 15,000 and 20,000 brick. One of the explanations is that speculative building is being postponed. Real estate interests are said to be building after the house is sold. On the other hand, the Louisville face brick dealers report that they are receiving numerous inquiries and that the indications are for resumption of business on a large scale when conditions become settled.

* * *

The outlook for building in Columbus and central Ohio territory grows brighter as the season advances. Despite the heavy advance in the price of building materials, many new building projects are going ahead as usual and architects and contractors are busy figuring on plans and specifications.

* * *

For the month of March building permits issued in Cincinnati, Ohio, had a value of $1,300,000, showing an increase of $238,865 over the corresponding month of last year.

* * *

Building in and around Sharon, Pa., has been quite active lately and brick manufacturers in that section are elated over the prospects of future business.

* * *

Permits taken out for new building in Philadelphia, Pa., show a substantial increase over the previous week, and in spite of the scarcity of labor and the high cost of materials a considerable amount of work has been started, including several large factories.

* * *

Labor troubles in the building trades broke out afresh at Cleveland, Ohio, after an apparent settlement had been effected, and operations are again in abeyance to a considerable extent.

* * *

Common brick in New York has taken another move skyward, going from $10 to $10.25 a thousand in wholesale quantities. Despite the increase, the demand is exceedingly lively and as fast as the barges from the Hudson district arrive the dealers are disposing of the contents.

Never before has the New York real estate market been confronted with such problems as it has been given to solve this year. Beside national issues, there are matters of taxation, local option on the liquor question, and other things that bear heavily on real estate and its operation. To one familiar with the situation it is clear that there can be nothing, so far as large undertakings go, but a marking of time until the government managers have made progress along lines of financing, recruiting, and other details having to do with the state of war into which we have been forced. The underbuilt phase of the market, however, is compelling activity in the building line and the war, therefore, has thus far only hindered speculative building and possibly a few unusually large undertakings. This is indicated by the fact that plan filings for Manhattan, Brooklyn, Queens and the Bronx last week, April 7 to April 14, totalled 173, valued at $2,449,572, as against $4,477,925 for the corresponding week of 1916. New buildings projected to April 14, this year, total $36,576,594, as against $42,670,997 for last year.

* * *

Pearson Company Constructing Unique Face Brick Exhibit

Devoted exclusively to the display of brick in all its textures and bonds, the new office and show building now under construction by the Pearson Brick Company, of New Castle, Pa., will, when completed, constitute a most elaborate and complete burned clay exhibit.

Already the ground has been broken for the structure and its completion is looked forward to early in the fall. The ground floor of the building, which will be of the sixteenth century English type and which will cost approximately $15,000 to construct, will be thirty by fifty feet, with an overhang in the second story of eighteen inches and an overhang in the gables of twelve inches, following the early English style of dwelling architecture. Red and brown combination of rough textured brick, laid in a straight English bond, will be used in erecting the first story.

The second floor will show exposed beams about four feet apart extending from the floor line to the square of the building. This arrangement will make the surface of the second story into about thirty-five panels in which rough textured stone gray brick will be laid up. The brick in each panel will be laid in different bond, which will make it possible to show every bond that has ever been used in brick work. The gables will be rough stuccoed in gray plaster on fire clay hollow tile and the roof will be covered with the extra heavy old English tiling of variegated shades.

The plot of ground in the rear of the building will be converted into a formal English garden, fifteen by thirty feet, and will be surrounded by high brick walls. The ground floor of the building will be devoted entirely to reception rooms and display parlors, each room carrying out the design of a certain period in the brick work, hangings, wall decorations, and furniture.

The second floor will be devoted to business offices, while the loft will contain a studio for the company's color expert, a graduate of Carnegie Technical School of Applied Design. This department is maintained for the purpose of solving problems of interior decorations and furnishings, and its service is free to the customers of the Pearson Brick Company.

The company is now temporarily located at 28 East Street, New Castle, pending the completion of its new headquarters.

* * *

First of New Paving Brick Ads. Appearing

The first of a new series of advertisements to be placed by the National Paving Brick Manufacturers' Association will make its appearance the week of April 23. The copy will deal exclusively with the use of brick for paving streets and country highways, and will be prepared for the purpose of arousing the interest of the farmer, autoist, and all who use roads. In connection with this advertising campaign, literature has been prepared by the association for farmers and others interested in the movement to pave permanently.

RELATION *of* METHODS *of* MANUFACTURE *to* DURABILITY

Showing Why Clay Products, Made of Artificial Rock, Have Lasting Qualities Far Above Most Natural Stones

By Homer F. Staley

Professor in Ceramics, Iowa State College, Ames

Read Before the Annual Meeting of the Iowa State Drainage Association, Held on February 20th and 21st, 1917, at Fort Dodge, Ia.

IN CONSIDERING THE RELATION of the method of manufacture to the quality of a burned clay product, it is essential that we have some idea of what burned clay is. Burned clay is really an artificial igneous rock consisting of small unfused particles held together by a vitreous or glassy bond. It is as truly a rock as any other made by nature. It is classed as an igneous rock because it is made by the use of fire and, since it is an artificial rock, carefully manufactured for a specific use, it is better for the purpose intended than any natural rock. Nature, in making rocks, did not have in mind that they were to be used for drain tile or for any other purpose. In fact, when natural rocks were formed there was no man to use them.

Natural rock is not as durable as the artificial rock made of burned clay. In New York City, there are used each year something like a billion brick, made of Hudson River mud, in building skyscrapers that will endure for many centuries without further attention, but the natural rock that composes the needle of Cleopatra in Central Park has to be coated with paraffine each year to protect it from the weather. In table I is given the estimated life of building stones:

Table I.—Life of Building Stones

Kind of Stone	Life, in years
Coarse brownstone	5 to 15
Fine laminated brownstone	20 to 50
Compact brownstone	100 to 200
Bluestone (sandstone), untried, perhaps centuries.	
Ohio sandstone (best siliceous variety), perhaps from one to many centuries.	
Coarse fossiliferous limestone	20 to 40
Fine oölitic (French) limestone	30 to 40
Marble, coarse dolomitic	40
Marble, fine dolomitic	60 to 80
Marble, fine	50 to 100
Granite	70 to 200
Gneiss, 50 years to many centuries.	

Page 86, Building Stones and Clay-Products, by Heinrich Ries.

EFFECT OF EXPOSURE ON NATURAL ROCK

The reason rocks will not last when exposed to the weather is that they are subject to one or more of the following defects: (1) faulty structure; (2) coarse textures; (3) high porosity; (4) presence of nodules of injurious minerals. Elaborating upon each of these defects, we find: (1) joint planes, bedding planes, fault planes and cracks serve as pathways for the entrance of water, frost and other weathering agencies which tend to produce disintegration and decay; (2) stones tend to disintegrate somewhat under changes of temperature, and coarse-grained rocks are affected more than those of a fine grained structure; (3) a dense stone, other things being equal, will break down less rapidly than a porous one since porous rocks, being open, absorb water readily. If this absorbed water freezes it may split the stone; (4) chert concretions and layers of mica tend to cause rocks to split under the influence of change of temperature and exposure to frost. Nodules of pyrites not only cause pitting by their decay, but hasten disintegration of the surrounding rock, due to the sulphuric acid formed by the weathering of the pyrites.

In making artificial rock, or burned clay products, manufacturers have been forced by the necessity for producing the best material possible to use methods and processes which are designed to overcome the inherent defects of natural rocks. That is, they have had to use methods to overcome the tendency of all rocks to be unhomogeneous in structure or in composition, or to contain nodules and layers of injurious materials.

We go from this point to the consideration of the various processes of manufacture of clay products, and the relation of these to the quality of the finished wares.

GRINDING THE CLAY

Even some clay products manufacturers believe that clays are ground to make them plastic so that they can be molded into clay products, and that clay products are burned to make them hard. While the grinding of clays does make them plastic, and the burning does make them hard, these are not the great objects to be obtained by these two operations. Clays are ground to make them homogeneous in composition, and clay products are burned to make them durable.

Clay wares could be shaped without the clay even being made plastic. For instance, in our laboratory at Ames, we tried quite a number of times to make small tile out of a natural mixture of white and red burning clays, which, when burned, gives a hard product and looks exactly like a piece of onyx. It is possible to make tile out of that clay by simply cutting it into shape without grinding, and, in fact, it would probably be cheaper to simply work into the clay

bank and cut out tile with the proper machinery than to grind and reshape it. In fact, grinding destroys the beauty of the product. But the various shapes we made of the unground clay always developed cracks and warping, simply because they were not homogeneous. The various layers of a natural occurring lump of clay will differ in structure and in composition, and consequently, will warp in drying and burning. Therefore, clays must be ground to make them homogeneous.

DURABILITY DEPENDS ON HOMOGENEITY

In order to be durable, clay products must have a certain degree of hardness, but they can be hard and not durable. They may contain nodules of injurious minerals that will cause spalling. Products not so hard may be durable, because the clay is homogeneous in structure and composition, and therefore will withstand the elements.

The object of grinding is to break down the old mineral structure of the rock and to blend the different layers of clay and the various minerals occurring in the clay so that every part of each piece of ware made from the mixture is the same physically and chemically. If grinding is not done thoroly the wares will tend to warp and crack in drying and burning. If the clay contains injurious minerals, such as iron pyrites and limestone, we are liable to have pocking and blistering in the burned ware. Pocking is the splitting off of little pieces of the burned clay over granules of impurities and is caused chiefly by limestone. If we have a little chunk of limestone in a clay which is not ground properly, it will turn into quick lime during the burning. The ware may look all right when it comes from the kiln, but after it remains in the yard about a week, pieces of clay are pushed off by the pressure of the large granules of quick lime. If the limestone is ground up finely, it causes no particular harm, because, in the first place, the granules are so small they cannot exert a great enough pressure to split the clay, and in the second place, if the granules are small, the clay will fuse around them and the lime will be turned from quick lime into lime silicate, which is not affected by weathering and tends to make the product stronger.

The other mineral commonly occurring in clays which may be called an impurity is iron pyrites. This material, if it is not ground finely, will remain in the clay when it is burned as iron sulphide, or possibly, since the sulphur may be all driven off, as iron oxide. These substances melt when the kiln temperature rises and cause black spots or black blisters on the ware. If the granules of iron pyrites are finely ground, however, they will simply be fused in with the clay and will cause no trouble.

PUGGING

After the clay has been ground, it is mixed with considerable water in order to give it plasticity and facilitate making it into the proper shapes. This is not absolutely necessary—some clay wares are made with the use of a very small amount of water by the so-called dry-press process, which is in reality a damp process. Pugging makes the raw clay plastic, and makes the finished clay ware more dense. The water around the clay particles enables them to slide on one another, gradually bringing the clay to the state where each grain fits up close to those adjoining it. It is possible to make the clay more dense by adding water and thoroly pugging the mixture than by exerting any amount of pressure upon a dry mass. Thoro pugging has an additional value in that it reduces loss from cracking and warping in drying and burning.

SHAPING

When it comes to shaping the clay by running it thru the die, the object is, of course, to give the piece the desired shape, and the shape of the die determines, in a large measure, the strength of the clay body and finished "rock." For instance, in hollow block, the ware is strengthened by webs or partitions. Of course, the kind of die used, the pressure employed, etc., have a very vital effect upon the factory loss.

Some clays tend to stick to the metal of the dies unless these are thoroly lubricated; and the parts which are not next to the metal are pushed forward faster than the parts near the metal. This causes a differential movement which tends to split the body of the clay into layers, producing lamination. If the clay does not have a very decided tendency to laminate, this action is not very great and during the burning these layers are welded together, making a strong clay product. In case the clay shows a tendency to laminate, however, some preventative or remedial means will have to be employed. The greater the tendency of a clay to laminate, the softer it has to be worked, that is, more water has to be used in pugging and the die must be more carefully constructed and lubricated. In spite of the tendency of some clays to laminate, they can be made into good strong ware by proper methods of manufacture and proper burning.

DRYING

There are very few points of interest to users of clay products embraced in the drying operation. If wares are cracked upon issuing from the dryer they should not be burned. If the burned ware is cracked, it is not sold as a first-class material, but is termed a second. So drying is really a point in which the consumer is not interested.

BURNING

In burning, we come to some points in which users of clay products are vitally interested. We will divide the burning process into three periods; watersmoking, oxidation and vitrification.

Watersmoking is the first step in burning, and in this stage the water which has not been eliminated in the drying is driven off. It is impossible to remove every particle of moisture from the clay in the dryer and set it in the kiln perfectly dry. Dry clay attracts two to four per cent. of its own weight of water from the atmosphere. In a great many cases, the ware is not dried so thoroly in the dryer as it might be, so that the amount of water as moisture in a piece of ware when it goes to the kiln runs from three to nine per cent. In addition, the clay contains from eight to fourteen per cent. of water in chemical combination, which can only be driven off during the watersmoking stage of burning. All together then, we have something like ten to fifteen per cent. of water which must be driven off after the ware reaches the kiln—and in a kiln of ware that means a whole lot of water.

During the watersmoking period, the main thing to be avoided is the "blowing" or "slabbing" of the ware which is caused by the generation of steam inside the ware faster than it can get out of the pores. Of course, this can be avoided by watersmoking more slowly.

OXIDATION

During the oxidation period, which runs from dull red heat to 1,600° Fahr., the main object is to drive off materials which are gas-forming. This is CO_2 in limestone, as well as carbon, which, when united with oxygen, forms CO_2 gas, and sulphur which, when combined with oxygen, forms SO_2 gas. The need for getting rid of these substances at this stage is great, since, if not disposed of at this temperature but allowed to remain in the clay until it becomes dense, the gases, held in by the impervious outer crust on the ware, would expand as the temperature increased and puff up the clay—like a loaf of bread is puffed up by yeast.

The CO_2 in limestone is driven out by simply heating to temperatures around 1,600° Fahr. The expulsion of carbon and sulphur is a little more complicated process and calls for continued heating of the ware in an atmosphere rich in oxygen, that is, with a clear, smokeless flame, at temperatures

below the point at which the ware starts to become dense. During the early stages of the burn, the carbon in the clay reduces the iron present to black ferrous oxide, which contains one molecule of oxygen for each molecule of iron. Enough oxygen must find its way into the pores of the ware, to unite with the carbon and sulphur and also to change the black ferrous oxide of iron to red ferric oxide, which contains one and a half molecules of oxygen for each molecule of iron. The affinity of oxygen for these three substances is as follows: carbon, sulphur, ferrous oxide. The carbon is burned out first, then the sulphur, and finally the black oxide of iron. The affinity of oxygen for these three substances is explained later, a black core containing no carbon or sulphur would do little harm, but the only way we can be sure that we have eliminated the carbon and sulphur is to eliminate the black core.

VITRIFICATION

Finally we come to the finishing or vitrification period. This period extends from the time oxidation is completed until the ware reaches the point where it contains very little pore space and yet retains its shape. If loss of shape occurs, the ware has passed from vitrification into fusion. The upper end of the vitrification period may occur at 1,800° Fahr., as in the case of some limey clays, or it may occur at 3,000° Fahr., as it does in some fire clays.

The chemical reactions that take place in clays during this period are not well known. It will suffice at this time to say that kaolinite and other hydrous silicates are broken down into more simple compound, and the basic oxides form compounds with silica and alumina.

Vitrification means that melting is taking place in the ware. In any fine grained mixture the first material to melt is not the one with the lowest melting point, but a mixture of minerals with a melting point lower than that of any individual mineral present. This is called the eutectic, or easy melting, mixture. As the temperature is raised, this mixture gradually takes more material into solution. A piece of vitrified ware is a mixture of unfused particles held together by films of glass. The first portions of glass formed in the ware does not run into the pores, but spreads out in thin films over the surface of the unfused particles and draws

(*Continued on page* 881.)

Tariff Commission Appointments Confirmed

Since the publication of the April 10 issue of "Brick and Clay Record," which contained an editorial calling attention to the necessity for including a merchant or manufacturer in the newly created tariff commission, the Senate has confirmed the nomination of the six members whose names were submitted by President Wilson and who have been holding office for a short time under recess appointments. The members and the terms for which they were appointed are as follows:

Frank W. Taussig, of Massachusetts, for a term of twelve years; Daniel C. Roper, of South Carolina, ten years; David J. Lewis, of Maryland, eight years; William Kent, of California, six years; William S. Culbertson, of Kansas, four years; and Edward P. Costigan, of Colorado, two years.

The commission, which has thus far occupied one room in the Treasury Department, will be located within a few days in one of the Washington (D. C.) office buildings. All of the necessary details of preliminary organization have been completed. The activities of the Commission will be limited until necessary equipment is obtained and the new quarters are ready.

The cost of production division of the commission, which was turned over, "ready made," by the Bureau of Foreign and Domestic Commerce, will remain in the Commerce Building for the present. It is prosecuting its work without interruption.

The commission plans eventually to round up in Washington a corp of experts to constitute an information division that is expected to be of great benefit to the American manufacturer. This division will have available detailed data on all the industries, as to production, costs, raw materials, and markets, and will be on hand to enlighten members of Congress and assemble any facts that they may wish.

Recent Freight Rate Rulings

The Interstate Commerce Commission has allowed application No. 11046 of the Southern Railway relative to the shipment of fire brick from Chattanooga, Tenn. The railway has been authorized by the Commission, pending further action, to insert the following in its I. C. C. tariff No. A-58 relative to fire brick from Chattanooga, Tenn., Birmingham, Ala., and other points covered by the above-named tariff, to Carolina points.

"In the absence of specific commodity rates on mixed carload shipments of earthern and concrete pipe and tile, fire brick, fire clay, clay retorts, flue lining, flue tops (chimney caps) and vitrified wall coping, the rates applicable on earthern and concrete pipe will apply."

The Commission two weeks ago handed down the following reparation orders:

The Peebles Paving Brick Company vs. the Baltimore and Ohio Southwestern Railroad Company et al. A refund of $265.50 was allowed on account of an unreasonable rate applied on sixty-eight carloads of paving brick shipped from Portsmouth, Ohio, to Parkersburgh, W. Va., during May and June, 1916.

Champion Brick Company vs. the Baltimore and Ohio Railroad Company. A refund of $133.40 was allowed on account of an unreasonable rate applied on six carloads of brick from Baltimore, Md., to Chester, Pa., in November, 1916.

Abundant Clays in Kansas

Clay suitable for brick and tile manufacturing purposes is abundant in Kansas, according to the report covering extensive experiments made by Professor Paul Teetor. Tests have been made systematically of clays in the eastern third of the state, which disclose the fact that Kansas clays make excellent building and paving brick, while the roofing tile clays found around Coffeyville are of an exceptionally high grade. Those deposits located near Pittsburgh are especially adapted to the manufacture of sewer pipe. Only a few deposits from the central part of the state have been tested, but they indicated a good quality of buff brick clay. Some of this material has been made into enamel brick in the college laboratory.

Coming—Perhaps in Next Issue
The Announcement of the Winners
in the Sales Ethics Contest
Watch For It!

MAKING *a* TERRA COTTA CORINTHIAN CAPITAL

Showing the Processes Thru Which the Piece Passes and Giving Information of Particular Value to the Student

By Rolf W. Bauhahn

(*Formerly with the Atlantic Terra Cotta Company, Perth Amboy, N. J., Now Instructor at Princeton University.*)

WHEN A MASSIVE CORINTHIAN CAPITAL appears at the top of a column in front of some colossal public structure, one rarely gives thought to its history. Its position is impressive and its form is beautiful, but its construction is overlooked. To a certain extent this is justified, because it is not of first importance even to the student of architecture. He is concerned with the appearance, the design, the aesthetic qualities of the architectural features and tends to neglect the processes of manufacture which make its beauty possible. But a knowledge of the methods in use today among manufacturers of building materials would not only prove of value to himself in designing, but would also be an important step toward a better mutual understanding between the architect and the manufacturer. If the architect has a knowledge of the treatment of the material desired, before it is placed in his building, he can co-operate with the manufacturer in making his designs, and thus secure a better product and better service.



A Well Modeled Corinthian Capital, Ready to Be Sectioned Off Into Pieces Marked by Joints, Which Follow the Outline of the Design

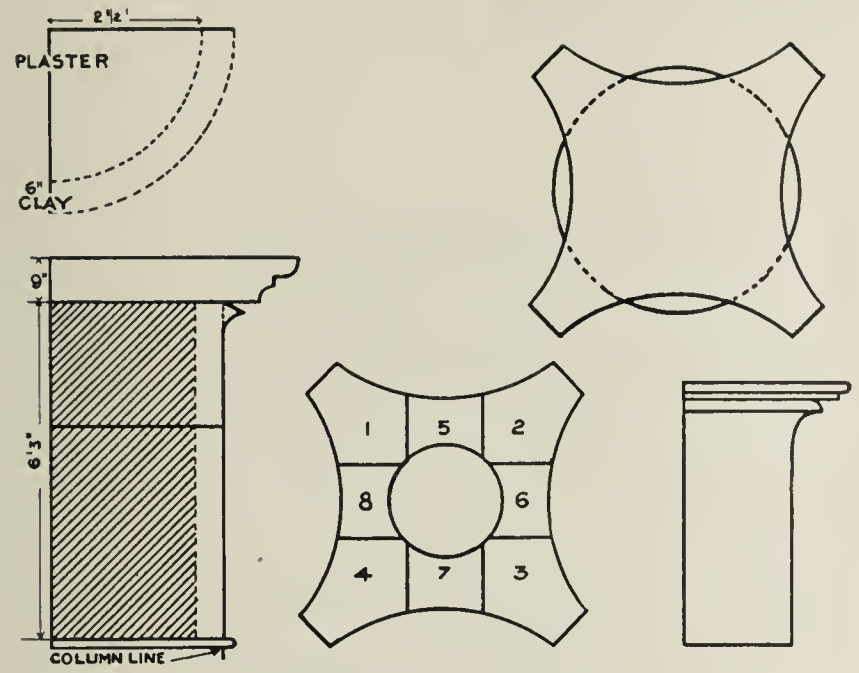
In the present discussion the aim is to enlarge the student's knowledge of practical architecture by explaining the nature of the processes thru which a large Corinthian capital passes before it is viewed by the public, and since terra cotta has become the most popular building material, it has seemed best to outline the construction of the Corinthian capital in this material.

SKILLFUL FINGERS MODEL THE DETAILS

Let us presume all necessary drawings have been sent to the modeling department of the terra cotta plant. Skillful sculptors are on hand to model the designs of the capital which the architect has chosen. The men who erect the foundations for the clay which the sculptors use in modeling make the required frame or skeleton for the capital in plaster. Presuming that a capital is to be built whose diameter is six feet on the column line and whose height is seven feet, the first important point for the student to note is that only one-quarter of the capital needs to be modeled, for this can be repeated to form the whole. Plaster sections are set up with a radius of 2½ ft., allowing 6 in. for the clay. After this plaster section has reached the height of 6 ft. 3 in., a plaster abacus is placed upon the top in such a position that its projection over the bottom is in accordance with the rules for the design of the capital. The skeleton form is now ready for the sculptor. He decides where the greatest strain from the weight of the clay will be incurred and fastens clumps of fiber and plaster at these points, covering them with some preparation to help the clay to stick, and then he applies the clay. When enough clay has been thrown on to outline roughly the features of the capital, the sculptor artfully models the crude product of the earth into a beautiful Corinthian capital.

When the work has been approved by the architect, the capital is sectioned off into pieces which are marked by joints, the pieces having joints to suit the ornament as much as possible, the outlines of features being followed. This is done to obscure the joints and give an appearance of solidity to the capital when erected at the building. Pieces are also jointed with due consideration of the form necessary for good burning in the kilns. Since allowance must be made for the shrinkage of the clay during the burning process, a standard shrinkage scale is used for all dimensions of pieces before burning, in proportion to the measurements required for the building. The joints having been designated to make possible the reproduction of the capital at the building, the clay and plaster are sawed thru these lines and the pieces

are taken down one by one. Each piece is then made into the form it will have in terra cotta, with a bond, which is that part of the piece which sets back into the frame of the column where the piece is fastened by iron. After the pieces have been numbered, molds of plaster of Paris are made, thus allowing the reproduction of as many capitals as the architect specifies. These molds are used to cast out in clay



Three Drawings, Showing, on the Left, the Plaster Form with Six-Inch Clay Covering, the Sections of the Abacus, In the Center, and on the Right, the Bell and Volute Course

the pieces which are burned at a temperature of 2,500° Fahr., and then shipped to the building.

COURSES IN MAKE-UP OF CAPITAL

If we examine the pieces which constitute the quarter capital constructed separately, it will be evident that the whole capital can be set up as well as variations in capitals to suit different positions.

There are four courses in the make-up of the capital; the abacus; the bell and volutes, and two alternating courses of leaves. The first course for consideration is the abacus, which, in the Corinthian capital, is made up of eight pieces; four for the corners above the volutes and four for the intermediate sections carrying the rosettes. When a quarter capital is modeled, one corner piece and one rosette piece are used. These two pieces are set up in finished form in plaster, as previously stated, and have the exact proportions of the terra cotta later set in the building. The rosette, however, is modeled on in clay. When the capital is taken down these two abacus pieces are removed first and are sent to the molders immediately.

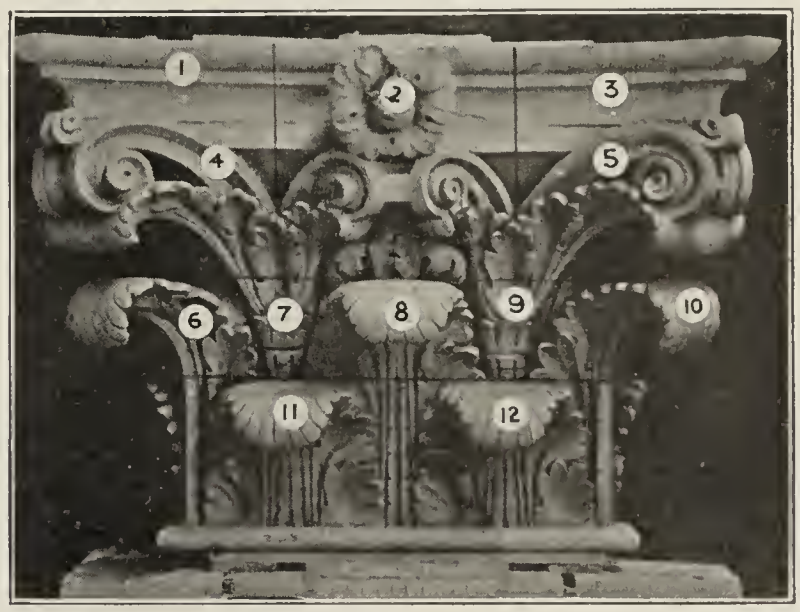
The next course is that of the bell and volutes. If we imagine the capital stripped of the scroll and leaf ornament the circular bell would be the form which gives the capital its shape. It projects beyond the abacus at the middle points as shown in the right-hand drawing above. As only one volute is modeled, its position under the abacus must be very exact, for the other three volutes will be the same. The joints of this course are, therefore, made to correspond with those of the abacus, and often the rosette piece of the abacus is fastened to the scroll piece below and both are molded as one piece. As can be seen in the figure, shown in the next column, the position of piece No. 2 requires the unseen side of abacus piece No. 1 to fit the right hand joint of piece No. 2; similarly piece No. 3. This condition implies the repetition of pieces 1 and 2 four times to form the capital, and piece No. 3 will naturally follow the position dictated by 1 and 2.

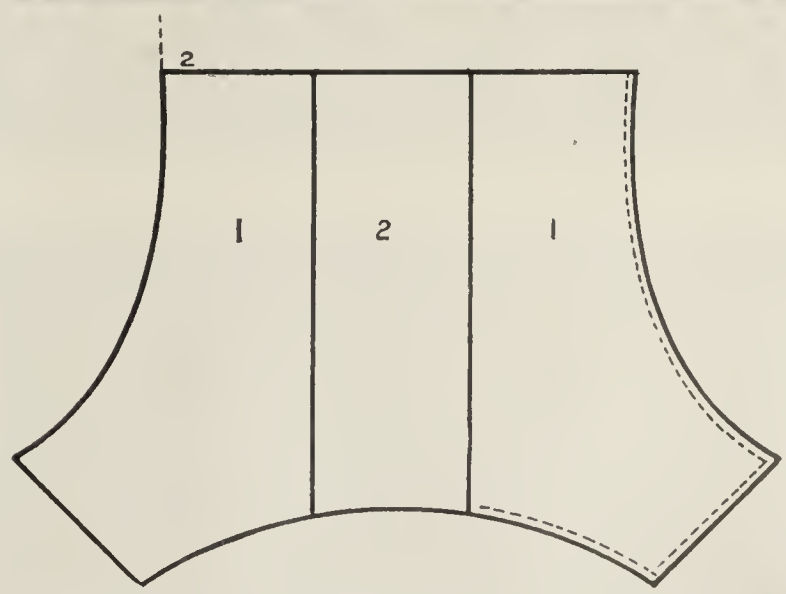
THE "LEAF AND CUP" COURSE

The third course, that of the first set of alternating leaves, requires its members to follow the order set by the courses above. One leaf comes directly under the volute and one directly under the scroll and rosette, leaving a space between the leaves for a cup or pod effect from which the scrolls of the above course spring. Separate joints are made for each leaf and cup. Theoretically, only one leaf piece and one cup piece are necessary for reproduction, but it is found that slight variations in modeling require separate leaves to be used under the volutes and scrolls. Thus, there will be two leaf pieces and two cup pieces, Nos. 4, 6, and 5, 7, respectively. The unseen joint of piece No. 4 takes up with the right hand joint of No. 7. And, as before, the course repeats itself four times as the members above.

The lower course of leaves, which alternates with the "leaf and cup" course above, is the most important, for the bottom of the leaves must spring from the line of the column below. Furthermore, the alternating position of these leaves must be exact, in order to preserve the balance of the capital.

A "reed" band or collar is used between the bottom of this leaf course and the top of the column to enhance this effect and to give an aspect of completion to the construction, "finality of expression" being as important in architecture as in literature. The jointing is comparatively simple for there are only leaves in this course, but the joints which take up with the course above require special care, since the leaves of that course continue down to the collar and are set





The Upper Picture Indicates Method of Jointing Capital Pieces, While the Lower Diagram Shows Method of Getting Perfect Fit by Repeating Pieces 1 and 2

back slightly from the line of the column below. There are two leaves on each quarter of the capital on this course, but only one leaf is needed to make the circuit, because, by proper jointing, it will repeat eight times. The joints are usually cut thru the middle of that part of the leaf of the above course which descends to the collar. This constitutes the eighth piece.

After molding these eight distinct pieces we can make as

many more from the molds as is necessary to meet the specifications for the round capitals. But often a building requires in its design variations, such as the pilaster capital and the combination of the round and pilaster capitals. These require separate consideration.

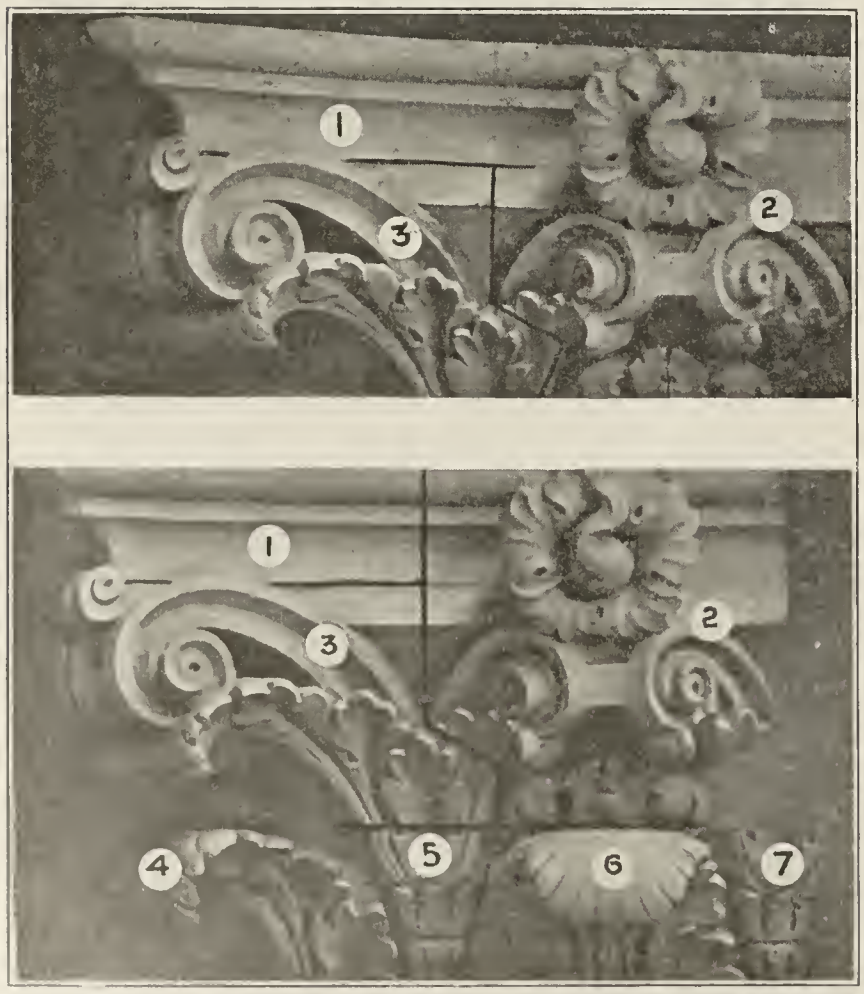
THE PILASTER CAPITAL

The method of construction for the pilaster capital is similar to that applied to the circular capital. The abacus has the same general lines, varying according to the projection of the capital from the wall. There are again four courses whose members have the same type of ornament as is employed in the Corinthian capital, but modeled to the form of a square column and bell instead of a round one. Usually the projection is so small that the entire pilaster capital when modeled must be jointed, cut down and molded for reproduction in terra cotta.

Thus, noting each course as before, using dimensions corresponding to those used in the construction of the round capital, we observe that there is always a right and a left piece, and that there is no repetition. The jointing of the pieces follows the lines of the courses and its members as in the round capital. As shown in the accompanying photograph, there are twelve pieces which must be molded to reproduce the capital for the building. The plain pilaster capital has a projection such that the corner pieces must set back into the wall, often causing small changes in ornament to make it take up properly with that wall.

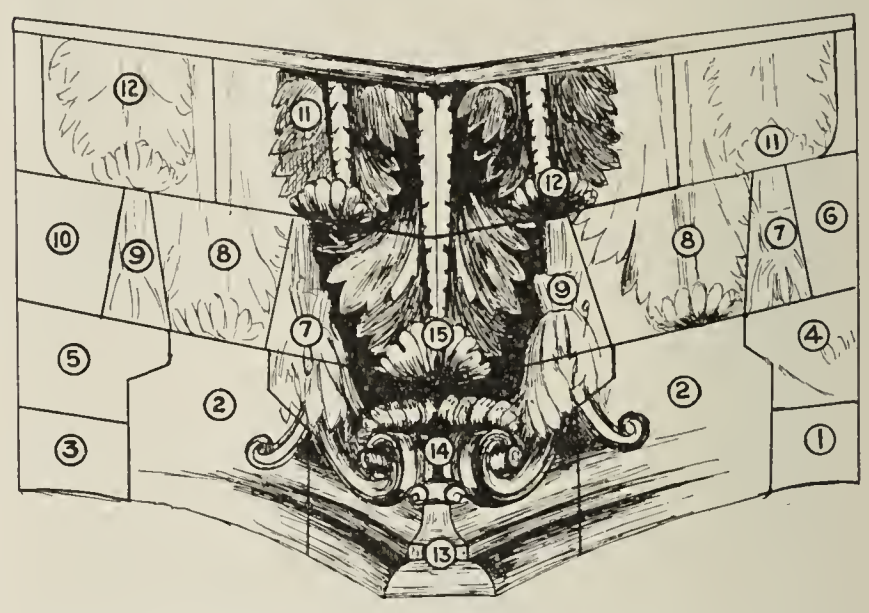
THE CORNER PILASTER

When two pilaster capitals meet at the corner of a structure, we are confronted with a problem which does not exist when a round capital stands at the end of a colonnade. The pilaster occurs, we might say, on two sides of a square and must undergo a certain patching process before it can be reproduced in terra cotta. Most of the pieces already made for the plain pilaster can be used on either side of the corner where the "patching" takes place. The method used in this operation is worthy of note.



Two Views Showing Development of Capital from the Abacus, and Bell and Volutes Courses, to the "Leaf and Cup" Course

The scale drawing and the full size drawings are given to the model makers, who proceed to construct the capital upside down, that is, with the abacus on the floor. Lines are first drawn on the floor to represent the line of the column below and the joints of the abacus. A corner abacus piece is made in plaster and set in its position; casts are then formed for all the center pieces on the left of the corner, with which all the corner pieces above the new abacus are made to take up. These casts are made in clay, backed up with plaster, from the molds of the plain pilaster capital.



Section Showing Jointing Used on Corner Pilaster, Which Is Made Upside Down by Setting the Abacus Pieces on the Floor

Noting the illustration, we see that piece No. 2 is cast and set alongside of the new abacus piece No. 13. Then a new volute piece is cast from the mold of No. 5 in the plain pilaster. This new piece, No. 14, is lengthened out with clay to meet the joint of piece No. 2. When the first two courses are ready, the leaf courses are easily arranged. Piece No. 7 is placed in its proper position on No. 14; a cast is then made of piece No. 10 (on the plain pilaster) and lengthened to fit the joint of No. 7, producing piece No. 15. In the top course pieces No. 11 and No. 12 joint without any alteration. Thus only three new pieces need be molded for the reconstruction of a corner pilaster in terra cotta. In this construction, however, the lines of projection must not be neglected. The nib of the abacus must maintain the same distance from the neck of the capital which it did in the plain pilaster capital.

THE DOUBLE CORNER PILASTER

Among the variations in position to which the Corinthian capital is subjected, the most complicated and, at the same time, one of the most effective in beauty is the position at a double corner of a building. In this case two pilaster capitals are combined on the lines of intersecting squares. The architect usually sends a small plaster model of this capital to show the blending of the ornament at the internal corner. The depth of this mitre will vary according to the intersection of the wall lines as shown in the specifications. As before, this capital is constructed by the model makers and finished by the sculptor. It is made upside down by setting the abacus pieces on the lines marked on the floor. Again, most of the pieces already made for the plain pilaster can be used, and only those pieces are cast which are necessary for the fitting of new pieces.

For the abacus, two new pieces are cast from the molds of the plain pilaster and lengthened out to make the proper construction.

For the volute and bell course, two more pieces are cast from the molds of the plain pilaster and lengthened.

(*Continued on Page* 880.)

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

Care of Sprocket Chain Drives

A driving chain should occasionally be removed from its sprockets and thoroly cleansed in gasoline, allowed to dry and then be immersed in molten tallow about fifteen minutes, or in light oil in which is mixed a little powdered graphite, and then to be hung up to drain. This should be done weekly to all chains when the conditions are severe.

Incased chains can be lubricated very well by an oil drip on the inside of the chain. Lubricant can also be applied with a brush (always to the inner side of the chain) while the chain is running slowly. A thick lubricant, such as cold tallow or grease, should never be applied to the outside of a chain. In the use of bushing chains, the sprocket teeth should be kept well oiled, which will save power and greatly increase the life of both chains and sprockets. Where there is no provision for adjustment of sprocket centers, a link should be removed when the chain sag becomes excessive.

* * *

A Small Plant Bonus System

Several very interesting letters have been received in reply to our request for information regarding the application of bonus systems, published in the March 27 issue of "Brick and Clay Record" in connection with an item entitled "An Interesting Bonus System Experiment," in which were presented the principles of a bonus system that had failed to produce results. One of these replies of exceptional worth was published in "The Letter Box" department of the April 10 issue, and went into great detail in outlining the requirements of a successful bonus system.

Another response of unusual interest, since it deals mainly with the successful application of a bonus system on a small plant, has been received from a company whose identity we are not at liberty to divulge, but which is enthusiastic over the results obtained by the system which it employs and which it outlines in the following letter. While it is considerable trouble to keep the time of the men and make out the sheets required by the system, yet the advantages to be gained by encouraging steady work on the part of the employes and in increasing production are sufficient to over-balance this factor, according to the concern in question. The communication received from this company outlining its system and describing the results, is as follows:

"The year 1916 put us to our wits end to meet new conditions, chief of which was the labor problem. Wages were going up all around us, and it was up to us to meet the pay of other industries or shut down. We had in previous years all the help needed at $1.25 for ten hours, but 1916 saw us paying $1.40 and always short handed. Many of our men live at a distance from the plant and a rainy morning was sure to give us a short crew. Our chief trouble was not enough men.

"Believing another straight raise would not overcome our trouble, we adopted a bonus system, based upon full time schedule. Our first announcement was $1.50 a day straight time, with ten cent bonus per day for all time made, from which twenty-five cents would be deducted as a penalty for each day or fraction of a day lost, bonus money to be paid monthly. This worked so well that at the close of the year we post the following notice:

WEEKLY BONUS FOR 1917

"'Commencing December 1, 1916, twenty cents a day will be credited for all time made, from which fifty cents will be deducted for each day or fraction thereof, lost under full time, fifty-three hours in winter and fifty-five in summer to be a full week's work.

"'Bonus credits will be figured weekly and paid monthly. Commencing December 8, sixteen cents an hour will be the standard wage.'

"This arrangement has since been amended by making the standard wage eighteen cents an hour, which, with the bonus, means two dollars a day.

WEEKLY BONUS.....DEC 22, 1916 to JAN. 25, 1917.

Name	Hours Per Week Ending Jan., 4	Jan., 11	Jan., 18	Jan., 25	Total	Days Lost	Deduct	Bonus
John Doe	52½	33	69	38	3.84	4	2.00	1.84
" "	60	55	53	21½	3.78	4	2.00	1.78
" "	64½	39	24	61½	3.78	5	2.50	1.28
" "	52½	48	42½	48	3.82	3	1.50	2.32
" "	62	63½	76	69½	5.42	—	—	5.42
" "	38	33	52	46½	3.39	3	1.50	1.89
" "	43	43½	64½	60	4.22	1	.50	3.72
" "	52½	38	37½	53	3.62	4	2.00	1.62
" "	37½	43½	23½	43½	2.96	5	2.50	.46
" "	43	53	32	53	3.62	2	1.00	2.62
" "	28½	53	78½	53	4.26	1	.50	3.76
" "	31½	24	—	49½	2.10	10	5.00	—
" "	53½	48½	52½	49½	4.08	2	1.00	3.08
" "	—	53	9½	57½	2.40	8	4.00	—
" "	28½	53	52	53	3.73	—	—	3.72
" "	—	38	15½	51½	2.10	9	4.50	—
" "	47½	53	4½	21½	2.53	10	5.00	—
" "	33½	34	—	—	1.35	14	7.00	—
" "	43	43½	5	38	2.59	9	4.50	—
" "	28½	38	25	53	2.89	5	2.50	.39
" "	—	38	29½	43½	2.22	4	2.00	.22
	Cr. Xmas 3 Days			Cr. Rain 1 Hour				

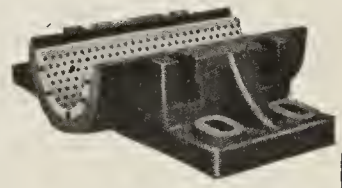
Monthly Table of Bonus Payments, Showing Time Made and Lost by Men During the Four Weeks

"In clay plants, as in other plants, all kinds of temperaments and characters are employed, and it is impossible to adopt any plan that will suit every one. We have a few men who do not seem to care anything about the bonus. The straight time gives them all the money wanted, even tho they miss two days a week, and we are so hard pushed for labor we can't afford to drop them. There are other men, who, we are glad to say, are in the majority who want the extra money and make an effort not to lose any time, and to encourage them, we give them the

Anchor Brand Colors
For Mortar Cement and Brick
Brown, Black, Red and Buff Strongest and most durable
Manufactured by
C. K. WILLIAMS & CO., EASTON, PA., U.S.A.
Correspondence solicited

MANGANESE
Prompt Shipment from Three Mines
THE IMPORT CHEMICAL CO.
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This Is the Way Your Bearings Look



To secure it you simply place a graphite sheet between the mandrel and the bearing box and pour in the babbitt. The result is a babbitt bearing impregnated with graphite spots. These bearings last from two to ten times as long on severe work.
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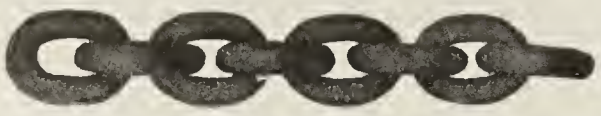
UNION STEEL RIVETLESS CHAIN BELTING
Has Large, Glass-Hard Reversible Bearings. Fits Any Std. Sprocket



"The Chain of Double Life"
Reduces operating costs because it outwears several ordinary chains and gives TROUBLE-PROOF SERVICE wherever used. Sprockets, Buckets, Elevators, etc.—Send for Catalog
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DO YOU NEED MONEY?
We Specialize in Bonds on Clay Properties.
We Arrange for Their Issuance and Sale.
We have rendered aid to many clay product manufacturers desiring to expand and improve their properties.
Write Us—Perhaps We Can Help You
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for Steam Shovels, Slings, etc.
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TRULY THE BRICKMAN'S BEST BELT
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106-108 Reade Street, New York
Branches: Atlanta, Boston, Buffalo, Chicago, Cleveland, Easton, Pa., Pittsburgh, San Francisco, Los Angeles, Portland, Ore.
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FOR GREASES AND OILS
A special brand for each requirement of every kind and size of machine. Also Belt Dressing and Boiler Compounds. Write for catalogue and prices.
G. B. STOCK XYLITE GREASE & OIL CO., Port Huron, Mich., U. S. A.

opportunity to make over time in loading, firing and so forth.

"We adopted the monthly payment of bonus because we think a year is too far apart for money payments to appeal to many laborers, and in preference to weekly payments, for fear some would make a straight week and then drop out for three or four days the next week.

"If, for any reason, we should not have work for full time, we would not deduct for time lost, and when the weather is so cold that no one works, no bonus deductions are made, but if any men work, those who do not work have the penalty deducted from their bonus. We think this a very fair method of giving the regular men more money than others. The irregular man will say his work is just as important and profitable to the plant as that of the regular man, and we tell him we give him just the same pay, eighteen cents an hour. If he needs more money we are glad to give it to him, but he must earn it by regular work.

"Every month a sheet is posted showing the time made and lost of such men as work during the four weeks. The sheet of January, reproduced on the preceding page, shows how the system works with us. It will be noted that with us the object of bonus money is to induce steady work. Our wage is spoken of as two dollars a day, while it is actually less than that. The January sheet shows the bonus to average about ten cents a day among all the men."

Reducing Misfire Costs

Many times on a hard job one sees the shovel hung up and doing nothing. On investigation it is found that some tight bottom has been encountered which the shot failed to pull, meaning a delay of an hour or more while the obstruction is redrilled and reblasted before the shovel can be advanced and digging resumed. A delay of several days may also be caused by the discovery that there are missed holes and unexploded powder ahead—naturally, the shovel crew is reluctant or refuses to proceed until the danger is removed. Oftentimes, the material has to be carefully mucked by hand and all this time the shovel must lie idle. Obviously, in order to get the best out of a shovel, continuous steady operation must be maintained. Delays are very expensive and if they occur frequently may even disrupt the whole organization.

It is not uncommon to see a shovel bring up unexploded charges. Occasionally these charges explode when hit by the dipper teeth, causing considerable damage. Often it remains for the muller of the dry-pan to set off the charge. To prevent the occurance of these accidents, which, often leave in their wake, a heavy toll of dead and injured, dig deeper holes to bring the bottom, and use more care in loading and in testing caps. To a great extent, delays and danger from above causes can be avoided by the proper selection of explosives and care in loading. Frozen explosives are less sensitive and efficient than when thawed. In order to get the maximum out of any explosive it is well to use strong detonators.

Difference Between Engine and Boiler H. P.

There is a vast difference between an ordinary horse power and a "boiler horse power." A boiler horse power is more than thirteen times as great as an engine horse



power. To be exact, the one is 13.149 times as great as the other. Did you ever know that?

Altho a lengthy search thru engineering books of all descriptions might fail to reveal this interesting bit of information, it can be seen from the following explanation to be correct.

The definition of a boiler horse power is "the amount of heat required to evaporate 34.5 pounds of water from and at 212 degrees Fahr. per hour." It has been figured that this amount of heat is equal to 33,479 British Thermal units per hour.

An ordinary engine horse power is equal to 33,000 foot pounds per minute. Now, since it takes 778 foot pounds to make one British Thermal unit, one can easily figure out that an ordinary horse power is equal to 2,546 British Thermal units per hour.

With this information, therefore, we can proceed to verify the statement made above by the following method:

$$33{,}479 \div 2{,}546 = 13.149.$$

This is a point worthy of being remembered. You should at least remember that an engine horse power is, approximately, only one-thirteenth as great as the boiler horse power.—*N. G. Near.*

* * *

The LETTER BOX

A Place Wherein Letters That Have General Interest Are Published and Commented Upon

Dry-pressed vs. Hand-molded Fire Brick

This is very much of a subject for debate. Some manufacturers have decided views as to the superiority of a dry-pressed or machine-made fire brick, while others are just as certain that the hand-molded type is the better. Wm. A. Butler of San Francisco, Cal., a letter from whom was published in the April 10 issue, comes back at us for our taking exception to his statement that dry-pressed fire brick are superior to hand-molded shapes. He gives his reasons for his contention in a letter which we print below and which because of the question surrounding the subject, should be of interest to all fire brick readers:

Your good letter of March 29 is here and I am glad to learn that my letter is interesting, as one finds it difficult to write for any length of time without becoming "stale."

Now, in regard to dry press being superior to hand-made whether it be common brick or fire clay brick, I will state that if any superiority of a hand-made brick over a dry-press brick is apparent, the difference is in the clay itself and not in the process of manufacture which we presume in both kinds of brick to be correct.

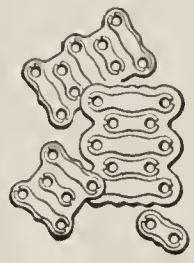
Porous brick to resist the transmission of heat are a special brick made from special clay for a special purpose, and I do not hesitate to state that the brick made by the dry press method will be a stronger brick as well as a better heat resisting brick than brick made by the mud process from the same material.

I have in mind the insulating brick, or cork brick made from silicious earth, with several names, such as infusorial earth, diatomaceous earth, celite, etc., etc. Experts may tell you that these materials are all different, but they all make brick that analyze and look alike.

Now, about fire brick, it is a well known fact that refractory companies sell more dry press fire brick for or-

Keep the Wheels Turning

A plant is bought or built.
Expensive machinery is installed.
Belting to transmit power and run the machinery is purchased.
It all costs much money.
And the continuous activity of the whole outfit depends on little things known as Belt Fasteners.
Truly they are Big Little Things.
Crescent Belt Fasteners keep the wheels turning.



They eliminate the breaking of belts at the joint, where most belts break.
Crescent Belt Fasteners maintain the maximum strength of the belt. They are adapted to all kinds of belting of every length, width and thickness.
No part of the Crescent Belt Fastener touches the pulley. It can neither wear out nor tear out.
Get longer service from the same belt by using Crescent Belt Fasteners.
Write for Booklet No. 3-C.



CRESCENT BELT FASTENER CO.
381 Fourth Avenue, N. Y., U.S.A.

Deduct Five Per Cent from the Base Rate of Your
FIRE INSURANCE PREMIUMS
If your rate does not exceed five cents, the saving you make by installing a
HARDINGE WATCHMAN'S CLOCK
will pay for the cost of the clock the very first year.



Thus—at no extra cost—you are protected against danger from the sleepy watchman, and each succeeding year you continue to save on your insurance.

Approved by Nat'l Board of Fire Underwriters.

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The J. B. Owens Continuous Tunnel Kiln Is Superior

For It Approximately

Saves 75% in Fuel. 50% in Labor.
75% in Saggers.

Write today for the Illustrated Descriptive Booklet.

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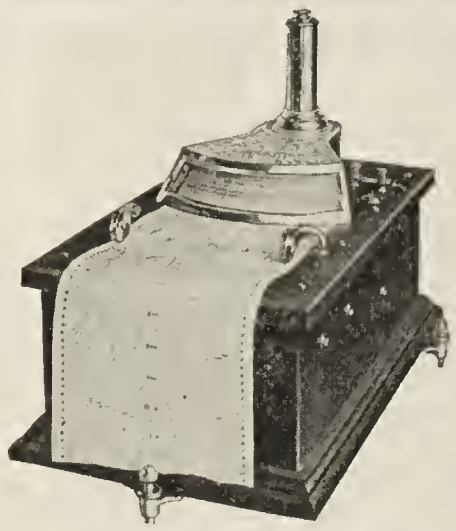
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THE BUCKEYE ROLLING MILL COMPANY
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BUCKEYE MEANS BEST — Offices: Steubenville, Ohio — All Sections from 12 lb. to 40 lb. per yard

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No order too large to handle promptly or too small to secure immediate attention.

SAY "I SAW IT IN" BRICK AND CLAY RECORD



This Recorder of

Price Pyrometers

is so constructed that it automatically indicates and records the temperature of one or twelve kilns at one time, on one sheet of paper.

This is only one of many reasons why so many clay product plants continue to prefer Price Pyrometers.

The Price Electric Co.
12367 Euclid Avenue
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Hercules (Red-Strand) Wire Rope

Modern methods and means of manufacture, plus material correctly combining strength, toughness, elasticity and flexibility, account for the safe and satisfactory service always afforded by HERCULES (Red-Strand) Wire Rope.

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A. Leschens & Sons Rope Company
St. Louis, Missouri

Branch Stores
New York Chicago Denver
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They Drill Big Blast Holes

at the plant of the Kansas Buff Brick & Manufacturing Co., Buffville, Kansas.

They say:

"It has cut the labor and fuel bill about 60%, and the powder bill about 50%. **It paid for itself in the first three months**; it saves enough powder each year to more than pay for its initial cost."

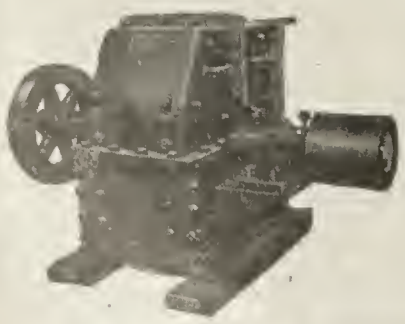
This is interesting because it is a fact.

Send for Bulletin No. 4.

The Sanderson Cyclone Drill Co.
Orrville, Ohio

The All-Steel
K-B PULVERIZER
Saves Power Costs

It cuts down your running expenses by using less power to do your work.



Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.

Write today for full details to the

K-B Pulverizer Co., Inc.
86 Worth Street
New York

dinary furnace work than they sell mud (fire) brick, and the demand for dry press is ever increasing.

All who have tried it know from the experience that if a stiff mud brick vitrifies at a certain temperature, this same clay made into a dry press will vitrify at a higher temperature. This stands to reason, because it requires more heat to vitrify a large body than a small one, and the larger body compressed into a body of the same size and shape as the smaller one will require more heat to vitrify it than the body which contains less clay.

Going further, we have a soft mud brick and a dry press brick made of fire clay. If these are both set in the same kiln and burned to the same temperature, one of the brick will be inferior to the other. If the temperature is raised sufficiently to properly burn the dry press brick, the soft mud brick will be overburned and probably brittle.

Magnesite brick (magnesite is an ill phrase, a vile phrase, as the CO_2 is burned off before the brickmaking process begins, why not call the brick by its right name as we do pipe covering?) are burned at a high temperature, often as high as cone 28. And these brick are made by the dry press method. I made some sample brick in New Mexico from ganister rock with a kaolin binder, and by the dry press process. I set these brick in the fire brick kiln with a high grade No. 2 plastic fire clay brick. At a temperature equal to cone 12 these silica brick were in the same condition as a clay brick which has been simply watersmoked and taken out of the kiln. Had they been burned above cone 18 the brick would have knitted together, to use a common phrase.

Vitrified paving brick people shy at the dry press process, because the manufacture of these brick requires more clay and more fuel, and the kilns consequently have to withstand a higher temperature.

This very point proves conclusively that a dry press fire brick is superior to a mud brick of the same size made from the same material, plus more water, because the mud brick will come to the point of incipient vitrification where the dry press is properly burned. When a fire brick is overburned or vitrified it cracks or goes to pieces in the furnace where exposed to much heat.

Shifting the subject somewhat, I would like to have an opinion from some one who has tried the thing out in a scientific manner as to whether a mixture of ten per cent. fire clay and ninety per cent. grog mixed as mortar and used as, say one-eighth inch joint in laying fire brick is not better than dip and hammer work. I have used such a fire clay and grog mixture and am of the opinion that even with one-quarter inch joints first-class work can be done.

The Editor would like to hear from others who have views on the comparative quality of dry-press or machine-made fire brick and hand-molded shapes; also we would be glad to learn of your opinion regarding the efficiency of a fire clay and grog mixture as compared to the dip-and-hammer method of setting refractories.

* * *

A Criticism and a Reply

Beginning on page 150 of the July 18, 1916 issue of "Brick and Clay Record," was published a letter from J. C. Harris, under the heading "Differs with Mr. Lovejoy on Producer Gas." Mr. Harris is a mechanical and combustion engineer of Pittsburgh, Pa.

Since the publication of the letter mentioned, Mr. Lovejoy has written a reply, and under our promise to print further letters on the subject under discussion, it is no more than fair that Mr. Lovejoy's letter should be published. However, before doing so, we wish to reprint Mr. Harris' letter, so that all of our readers may have the entire matter before them and thus be enabled to consider it intelligently.

DIFFERS WITH MR. LOVEJOY ON PRODUCER GAS

Having had some little experience in the use of, and possessing a modicum of knowledge, both technical and



practical, in the application of producer gas from a fuel standpoint, I take this opportunity to correct what I consider a piece of misinformation prejudicial to the best interests of the clayworking fraternity at large.

The application of producer gas to periodic kilns has been strongly advocated within the past two years, and several installations are now operated with marked economy. In discussing the question with brickmakers I have had several instances where parties called my attention to the statements made by Ellis Lovejoy, in his book entitled "Economies in Brickyard Construction and Operation." Owning a copy of the book, I looked it up and on page 65, in Chapter IX, under the caption "Use of Producer Gas in Burning," I found the statements actuating my remarks below.

Quoting from Mr. Lovejoy's book, verbatim:

"(1) Is there any economy in the use of fuel gas? Considered solely from the standpoint of fuel consumption, there is no economy, but on the contrary, quite a little loss.

"The gas producer gasifies part of the fuel at the expense of another part. Some portion of the fuel is actually consumed in producing the gas, and this fuel is represented in the initial heat of the gas, which may be about 700 degrees F. If the gas cools before it reaches the kiln, all this heat is lost, and the fuel which generated this heat is wasted. We make up from the United States Fuel Testing Report the following data: The average of twenty-four coals tested show a heating value of 155.8 B.T.U. (British Thermal Units) per cu. ft. gas. Each pound of coal as fired averaged 52.6 cu. ft. of gas, equal to 8,195 B. T. U. Each pound of coal used in the producer plant during the producer test averaged 47 cu. ft. of gas, equal to 7,323 B. T. U. The average of the coal as fired was 11,583 B. T. U."

The figures in the foregoing are reasonably correct, insofar as they pertain to power gas; that is, a gas which has been scrubbed, cooled and the tar extracted. Such a gas utilized for fuel purposes as applied to periodic kilns would come within the range of the losses described, but in actual practice, conditions are entirely different.

For instance take a bituminous coal containing 55 per cent. of carbon and 32 per cent. of volatile combustible (approximating Pittsburgh coal). Now in each 100 lbs. of coal we have 55 lbs. of carbon, of which say 50 lbs. are burned to carbon monoxide (CO) and 5 lbs. carbon dioxide (CO_2). By handling the producer properly one-fourth of the oxygen is derived from the steam used in blast and three-fourths from the air. The 32 lbs. volatile or hydrocarbons will consist in slightly varying quantities of hydrogen gas (H); methane, marsh gas (CH_4) and ethylene (C_2H_4). These volatile hydrocarbons are taken on 20,000 heat units to the pound classed as marsh gas. These I tabulate as follows:

50 lbs. C burned to CO	116.66 lbs.
5 lbs. C burned to CO_2	18.33 lbs.
32 lbs. vol. HC (distilled)	32.00 lbs.
80 lbs. O are required of which 20 lbs. derived from H_2O, liberate H	2.50 lbs.
60 lbs. O derived from air, are associated with H	200.70 lbs.
	370.19 lbs.
Energy in 116.66 lbs. CO	504.554 B. T. U.
Energy in 32.00 lbs. vol. HC	640.000 B. T. U.
Energy in 2.5 lbs. H	155.000 B. T. U.
	1,299.544 B. T. U.
Energy in coal	1,437.500 B. T. U.
Per cent. of energy delivered in gas	90.
Heat units in one pound of gas	3484.
Heat units in cubic foot of gas	229.2

The energy is calculated from weight and is strictly correct. The gasification is theoretical for the conversion of this particular coal and will very closely approximate the above results, provided the temperature of the gas is not allowed to fall below 300 degrees Fahrenheit at the burners, below which point the hydrocarbons will condense. A sample of the above gas, scrubbed, cooled and analyzed will show energy of about 75 per cent.

Disposing of Mr. Lovejoy's enormous initial producer loss will state that the actual producer loss in no case should be more than from 15 to 18 per cent. He fails entirely in taking notice of the steam used in blowing the

ORIGINAL Boss SYSTEM
COMMON SENSE APPLIED TO
Drying and Burning
ORIGINAL Boss SYSTEM

Boss Ten-Hour Dryer

Would you like to really dry your brick and do it in half less time?

Boss System of Burning Brick

Would you like to improve the quality of your brick and reduce your cost of burning?

Then write for information and we'll SHOW YOU HOW!

JOHN C. BOSS COMPANY
Monger Building - Elkhart, Indiana

Manganese Dioxide

All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

Crimora Manganese Corporation
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SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

Produces absolutely uniform heat and reduces fuel consumption. Keeps the heat where it is productive. The reduction in rejected pieces will pay for the insulation in the first month of operation.

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Write nearest Office for Samples and Information.

Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.

We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.



STUPAKOFF PYROMETERS

for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

The Stupakoff Laboratories
Pittsburgh, Pa.



The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana





In these days of rising prices for belting, power, etc., you make a serious mistake if you don't do everything possible to reduce your annual charge for belts and power.

Sero Belt Dressing

not only keeps belts from slipping, but it also prolongs the life of belts and reduces the amount of power necessary. We will ship you a 50-pound trial can just to prove our contentions. Why not let us do it?

SERO SPECIALTY CO., CLEVELAND, O.

We also make "Sero" Gear and Cable Coating and Manilla Rope Dressing

B. & B. Aerial Tramway Systems

Handle any kind of loose material expeditiously, economically and with absolute safety.

Where the grade is sufficient, gravity supplies all the power, and one or two men can operate an entire tramway.

Ask for Catalog 16 giving detailed information.

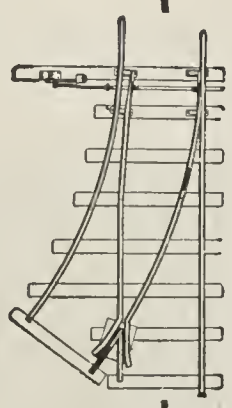
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New York **Seattle**

Industrial Track Equipment

Everything in switches, crossings, frogs, switch stands, rail braces, tie plates—ready to be shipped promptly on receipt of your order.

Ask us for quotations on your industrial railway needs.



The Cincinnati Frog & Switch Co.
Cincinnati, Ohio

producer and its great capacity for absorbing heat when dissociated by passing thru an incandescent fuel bed. The steam being H_2O (water), the hydrogen is liberated as hydrogen gas and oxygen (O) of carbon dioxide (CO_2) in the high temperature zone of the fuel bed. The hydrogen gas when burned in combination with oxygen, derived from the air in the proportion of 1 lb. hydrogen to 8 lbs. oxygen, the result is 9 lbs. H_2O, or water. The heat then generated is 62,000 B. T. U. This condition will not take place in any kiln and, if it did, a loss would result due to condensing the water with the ware in the kiln. The result of this reaction usually leaves the kiln as superheated steam, only condensing in the atmosphere, in which case the heat value of hydrogen predicated on double the air supply necessary will be about 49,750 B. T .U.

As compared with solid fuel direct-fired, the economy from the use of producer gas in burning periodic kilns, whether up or down draft, is considerable. Any gaseous fuel permits of a more uniform control over the proportion of air necessary for complete combustion than can ever be developed with the best constructed furnace direct-fired. Also a gaseous fuel at all times maintains a constant and uniform temperature. Owing to the properties of producer gas a long, lazy flame is developed, reaching all parts of the kiln.

Mr. Lovejoy says: "It matters not under what condition you fire producer gas, you will get less value from the fuel than if direct-fire."

I do not know if the gentleman has reached the millennium in furnace construction or has a process for calibrating the thickness of fuel bed to the kiln draft in order to, at all times, get the proper volume of air thru his fuel bed, or has any more intelligent firemen than I have ever been able to come in contact with. Any brickmaker will, I think, agree with me, if he has ever taken pains to examine his ash pile, especially after a rain, that from 30 to 60 per cent. of the volume of it is carbon. The ash pile from any kiln is burning for days and days after the kiln is closed.

The loss in free carbon with ashes from a producer is very slight. The same coal, fired in a producer as used on any plant direct-fired, will show a saving in actual practice of from 30 to 40 per cent. in favor of the producer. The reason why such economy aligns itself on the side of producer gas firing is that no more air than is necessary for combustion, with a slight excess under oxidizing conditions, need be admitted to the furnace, where, as in direct firing, fully one-half of the coal consumed in burning clay ware is utilized in heating excess air.

Actual practice in the use of producer gas for burning clay ware and the many advantages apparent to users thereof are its greatest recommendation.

Quoting further from Mr. Lovejoy's book:

"(2) What temperatures can be obtained from producer gas?

"It frequently happens that a manufacturer is willing to sacrifice fuel in order to get higher temperatures, but he should not attempt to use producer gas. Fuel gas is a very lean gas, and is not suitable for high temperatures when fired cold in periodic kilns. In fact, fired cold, assuming 25 per cent. excess of air for proper combustion, and kiln radiation loss of 20 per cent., it would be difficult to get above Cone 3, and under less favorable conditions which often prevail on a brick yard, it will be impossible to get a temperature of Cone 1."

Mr. Lovejoy is wrong again. Producer gas contains in gaseous form all the elements in the coal plus the added hydrogen derived from the steam of blast.

He specifically states that under certain conditions "it would be impossible to get above Cone 3 and under less favorable conditions, which often prevail on a brick yard, it will be impossible to get a temperature of Cone 1."

Now Cone 1 is 2,102 degrees Fahrenheit and Cone 3 2,174 degrees Fahrenheit—comparatively low temperatures, generally speaking. These temperatures are equally impossible with the best coal if a furnace or fire hole is too small and will not supply the kiln with a sufficient volume of heat. The same degree of temperature can be obtained in the burning fuel bed of one pound of coal as in the burning bed of one ton; the merest tyro knows that one ton will do more than 1 lb. A furnace properly constructed to burn ware to Cone 3 would be entirely inadequate for burning silica brick to Cones 19 or 20, or for magnesite burning to 3,000 degrees Fahrenheit, tho the same coal be used.



Therefore, is it not just as reasonable to assume that with proper volume of gas, temperatures way in excess of Cone 3 can be attained with the same relative per cent. of economy over hand firing? From my own experience I know this to be the fact. For instance, a certain clay in standard building brick, burned to Cones 3 and 4, required from 1,400 to 1,600 lbs. of coal per thousand. With producer gas the same temperatures were reached in one-half the time with three-fifths of the coal consumption and could be raised considerably higher were it necessary.

In justice to the brickmaker, I deem it fair to rebut the erroneous statements in Mr. Lovejoy's book. This book is on sale and within reach of all and emanating, as it does, from a high source it naturally carries the weight of authority. The average brickmaker has a hard road to travel—labor and fuel costs piling up with inadequate returns and compensations for his labors. The fuel expenditure is the one big leak about the plant to drain his profits.

With very few exceptions his costs cannot be reduced except in the burning of his ware; producer gas is the one medium by which this end can be brought about without any great investment and without disturbing his present kiln arrangement.

MR. LOVEJOY'S REPLY

Upon my return from Alaska my attention was called to a discussion by J. C. Harris in the July 18 number, of my article relative to producer gas.

As a first premise, I made the statement which Mr. Harris quotes: "Is there any economy in the use of fuel gas? Considered solely from the standpoint of fuel consumption there is no economy, but on the contrary, quite a little loss."

The data from which I drew my conclusion is that given in the United States Fuel Testing Report and Mr. Harris gives the figures from my article, which he admits are correct. I did not make any calculation whatever, but simply summed up and averaged the results given in the government bulletin and the losses which I show are the losses which resulted from these tests. Mr. Harris states that these results are correct insofar as they pertain to power gas, that is, gas which has been scrubbed, cooled and from which the tar has been extracted. I made the statement that the tests were for power and the gas was cooled and scrubbed and that, in any event, a high percentage of the fuel value is lost if we allow the gas to cool.

Mr. Harris' criticism of the facts presented is not justified, because they are facts based upon government data. He would be justified in making a criticism that the gas considered is not equal in value to producer gas for combustion purposes.

Most of the data available at the time the article was written and, in fact, at the present time, is that for power purposes, and in presenting the matter to the clayworkers I did not wish to use any data based on assumptions, even at the risk of showing lower efficiency than would be possible with a better grade of gas.

Mr. Harris presents some combustion data taken from a pamphlet on "Gas Producers and Producer Gas Power Plants," and this data represents a theoretically one hundred per cent. efficiency gas which cannot be duplicated in average practice. The per cent. volume of this gas as given by the author of this pamphlet is as follows:

CO	27.8	per cent.
CO_2	2.7	" "
Hydro-carbons	13.2	" "
H	8.3	" "
N	47.8	" "

Anyone who has studied producer gas analyses will agree with me that this is unusual gas, containing, as it does, forty-nine per cent. combustibles. The several authorities on producer gas give the combustibles as between thirty and forty per cent.

Mr. Harris makes no allowance for tar and soot, some of which will be deposited even tho the gas is used hot. He makes no allowance for fuel to generate steam, ignores any loss in initial heat of the gases in conducting them to the kilns, and intimates that there is no carbon in the ash.

I have not reached the "millennium" in coal firing as he suggests, but he goes the millennium one better in the statement that the gas contains "all the elements in the coal plus the added hydrogen derived from the steam of the blast." The steam does not add one whit to the value of the gas.

NOTICE

We announce the removal of our general offices to the Fisher Building, Chicago, Illinois, ***effective May First.***

Our St. Louis office will be in charge of Mr. F. Schifferle, in the Boatmen's Bank Building.

RUTLEDGE & TAYLOR COAL COMPANY

There is no real, good reason why

BOTTOM DUMP CARS

should not predominate on the ordinary clay plant.

When you dump this type of car the lock is released and the "bottom falls out," every bit of the load drops. There is no swaying, rocking, hammering operation that destroys not only the car itself, making it wobbly and battered, but also destroys the elevated track structure, besides being dangerous to the operator.

What do you think of it?

Get in touch with us on your next order.

The Youngstown Steel Car Co.

YOUNGSTOWN, OHIO





The Veritas Firing System

A new system that indicates to your burner the exact progress of the ware being fired.

It is an indication of work done, of accomplishment.

To install and operate it costs only one-tenth as much as the usual pyrometer.

It is used by 150 plants, firing off over 1000 kilns each week.

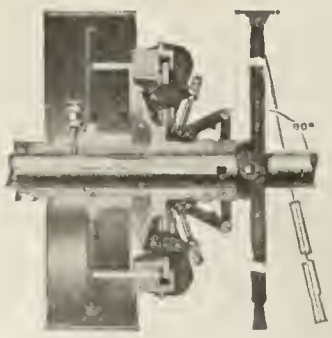
Inquire of the Cleveland (O.) Hydraulic Press Brick Co. or The Dover Fire Brick Co., also of Cleveland, O. They both use it. And write us, asking for complete information.

The Veritas Firing System Co.
TRENTON, N. J.
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THE HILL CLUTCH CO.

"Highest Grade Material and Workmanship"

When you purchase transmission equipment you want to be sure it is **made right** and of **dependable material.** In other words, you want the kind manufactured by Hill Clutch Company.



"In all respects we have found whatsoever we have bought from the Hill Clutch Company to be of the highest grade of material and workmanship, and that their methods of handling their business from an engineering standpoint puts them in a class above most of their competitors."

This is what the Hydraulic-Press Brick Company, Cleveland, tell inquirers re the satisfaction and dependability of HILL CLUTCH MACHINERY.

But we want you to realize the same condition in your plant. Write us for details.

The Hill Clutch Co., Cleveland, O.

To the contrary it lowers the value in that the water vapor carried out of the kiln stack has nearly double the specific heat of the other combustion gases. Its value is in keeping down the temperature in the producer, in the prevention of clinkers, in that it takes up as latent heat the heat derived from the combustion of the coal and delivers this heat to the kiln without loss to latent heat. It is only an inference that 'elements" means heat value, but a justifiable one, because he is discussing heat value and since his statement would be equally true of the products of combustion leaving the kiln which have no heat value except sensible heat.

He calls attention to the carbon losses in the ash from periodic kilns and says that producer losses in this way are very slight. I can cite him to several authorities on producer gas in which he will find that the loss thru carbon in the ash from a producer varies from one-half of one per cent. to twenty per cent. of the fuel fired in the producer. One reference will suffice—Bulletin No. 50, Engineering Experiment Station, University of Illinois, twenty-five tests in a suction gas producer gave a carbon content in the ash varying from 8.56 per cent. to 76.4 per cent. Only two of the twenty-five tests showed less than twenty-five per cent. carbon in the ash.

He considers only the one-half of one per cent. loss.

Mr. Harris estimates a ten per cent. producer loss in his theoretical gas, but adds that if it is scrubbed and cooled, the loss will be twenty-five per cent. We are then not very far apart, since I gave the loss as twenty-nine per cent.

If he adds fuel to generate steam he will get at least three per cent. more. The actual steam consumption in St. Louis test was found to be eight per cent. If he will allow a reasonable carbon in the ash we will be pretty close together in our estimate of producer losses.

He disposes of my "enormous initial producer loss" by the statement that in no case should the loss be more than fifteen to eighteen per cent.; presumably hot gas being involved and also presumably not including the fuel required to generate steam.

Analyzing his statements I think he should admit a total loss of twenty per cent. in the hot gas when it has reached a kiln several hundred feet from the producer. If so, then out of every five pounds of coal fired in the producer, four pounds are delivered to the kiln.

I admit that gas can be burned with nearer the theoretical air requirement than coal direct fired, and this is the factor which must off-set the producer loss. In this combustion, Mr. Harris goes to an extreme, as he does in all other statements, when he says that with producer gas "no more air than is necessary for combustion, except a slight excess under oxidizing conditions, need be admitted," while, "one half of the coal consumed (in direct firing) in burning clay ware is utilized in heating excess air."

If the latter statement were true, the possible flame temperature from a bituminous coal would be around cone 1 (see Industrial Furnaces, by E. Damoor), whereas we burn fire brick, porcelain, silica brick, etc., requiring temperatures from cone 7 to cone 20, and higher, with coal direct firing.

Mr. Harris is just guessing and has another guess coming.

He has not such absolute control over the gas firing and he compares theoretically perfect (and impractical) conditions in producer gas work with the worst practice in direct coal firing.

The question between us is how much better control is obtainable with the gas than with the coal.

My contention was that if the gas is no better than that at St. Louis and is used cold, the producer loss cannot be overcome, with a measure of economy in addition, by the better control of the combustion favorable to the gas.

He correctly calls attention to the greater volume of gas which can be burned in a given furnace, and thereby reducing the relative kiln radiation loss, but he limits the coal firing to the size of his furnace.

Kilns can be constructed with larger furnaces and more of them and get the same benefit. The application of gas to an old kiln with limited furnace area has the advantage he claims. Were I to limit him to one burner in comparison with unlimited coal furnace power, the radiation loss would be in favor of the coal, but such a limitation in considering possibilities of fuels would be unfair, as is his limitations on the contra side of the question. The kiln radiation does not enter into the question except in

SAY "I SAW IT IN BRICK AND CLAY RECORD"

the application of gas to an old kiln with limited coal furnace power.

The fuel economy must come from the better control of the combustion of the gas, and in this we must overcome a producer loss of twenty per cent., more or less, before economy begins.

Temperatures which I mention are a matter of calculation (see Vol. XII, Trans. A. C. S.) and they are dependant upon the composition of the gas and the conditions assumed.

Mr. Harris' theoretical gas will give a higher temperature than the St. Louis gas, and if he uses it without any loss of initial sensible heat, without any excess or lack of air, and has no kiln radiation loss, the temperature will be much higher.

If my data was correct, and for it I am not responsible, then my deductions were correct. Mr. Harris' data and assumptions are not practical.

Between us there is debatable ground for higher temperatures, and fuel economy, in many clayworking operations.

At the time my article was written there was in this country no producer operation in periodic kilns and we had one noted example of a dismal failure.

Since then a producer system has been put on the market and is being successfully operated in several plants and I sincerely trust that there may be further developments along this line. I will welcome anything which will improve the clayworkers' product or lessen the cost, and I have frequently mentioned the enormous losses which occur in the burning in the average brickyard practice.

I am satisfied that in many instances producer gas can be used in periodic kilns with a decided advantage over the present coal firing, simply because the coal firing is far below a possible efficiency, while producer gas properly installed under the direction of those familiar with its use, will be a more efficient operation.

Mr. Harris would do the clayworkers a real service if he would start with the government data which I used, and show by actual average analyses of producer gas practice that a better gas than the St. Louis gas is practical, and to show by pyrometer tests how much of the sensible heat can be delivered to the kiln. I would heartily commend him for such a presentation which would have weight with the clayworkers and tend to advance the use of producer gas in the industry but he gets nowhere with assumptions which he cannot duplicate in average practice, nor indeed in any actual practice of the highest efficiency.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

E. L. Marriage, of Iowa Falls, Iowa, has been appointed the Iowa representative of the Western Paving Brick Manufacturers' Association.

Lester Deming, of Berlin, Conn., was recently given the position of sales manager for the Donnelly Brick Company of Berlin.

E. J. Schario, of the Keim Brick and Tile Company, Louisville, Ohio, was a recent visitor in Columbus. He reported a good demand for his product from many sections of the country.

C. W. Irwin, formerly manager of the Minneapolis (Minn.) branch of the Hydraulic Press Brick Company, has been





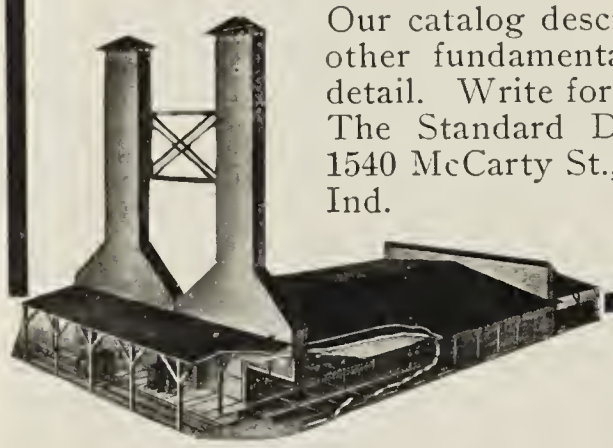


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is the vital test of any brick-drying system. And right there is the reason why **all natures** of clays "look alike" to

The Standard Brick Drier

Control of the drying elements is absolute—yet very simple. So simple that any one man around the plant can give The Standard Drier all the attention it needs.



Our catalog describes this and other fundamental features in detail. Write for it. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

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Rooms with Adjoining Bath
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$2.00 up

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10 Minutes Walk to 40 Theatres

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HARRY P. STIMSON
Formerly with Hotel Imperial

Only New York Hotel Window-Screened Throughout

placed in charge of the branch at Davenport, Iowa. Mr. Irwin succeeds J. L. Buckley, who recently resigned to take charge of the Capital Clay Company, of Des Moines.

Charles E. McCammon, of L. H. McCammon Brothers, a well known brick, sewer pipe and supply firm in Cincinnati, Ohio, is receiving the condolences of his friends on the recent death of his wife. Mrs. McCammon died on April 9, after an illness of four months.

Arthur S. Cunningham, vice-president and general manager of the California Clay Corporation, of Ione, Cal., has gone East to buy machinery for the new company. He is accompanied by Mrs. Cunningham and their two sons, who will remain there several months after Mr. Cunningham's return.

H. C. Kleymeyer, general manager, and John Andres, secretary and treasurer of the Standard Brick Manufacturing Company, took a prominent part in the program when the beautiful new Soldier's and Sailors' Coliseum in Evansville, built of brick and completed at a cost of about $225,000, was dedicated.

Henry Miller, of Rochester, Pa., one of the pioneer brick manufacturers of the Beaver Valley district, died on April 17, after a brief illness. At the time of his death, Mr. Miller was president of H. Miller and Company, a building concern which has done considerable large office structure work.

George Bilque of the Gloniger Brick Company, Pittsburgh, Pa., was a visitor to Cleveland recently, and while here inveigled his friends in the "Sixth City" to participate in a "Smoky City" game called red dog. Returns will be announced later. George, we fear this is an echo of the dog-and-badger stunt at French Lick.

W. H. Lutchenberg, who has been a salesman for the Nelsonville Brick Company, of Columbus, Ohio, has resigned to accept the position of manager of the Ashtabula (Ohio) Brick Company. He has already taken up his new duties and plans to make a number of improvements at the plant, which manufactures paving blocks exclusively.

"Jimmy" Kirk, one of the most beloved figures that has ever become affiliated with the clay products industry in Bucyrus, Ohio, died suddenly on March 31, of heart failure. In the past eleven years, "Jimmy" of the big heart but frail and diminutive stature, has built up a contingent of friends which few have the pleasure of possessing. His loss will be very deeply felt at Bucyrus.

Herman A. Plusch, author of the valuable series of articles on the manufacture and use of terra cotta which is appearing in "Brick and Clay Record," and research engineer for the Abrasive Company of Philadelphia, Pa., recently gave a lecture before the men's club of St. Martin's Church, Philadelphia, on the subject of "Clay Products; Use and Manufacture."

H. S. Beegle, of the Beaver Clay Manufacturing Company, New Galilee, Pa., was another prominent brick manufacturer to visit the offices of Columbus (Ohio) brick dealers during the past fortnight. During his visit, he attended a conference of clay manufacturers held in Columbus to protest against the fifteen per cent. advance in freight rates.

F. I. Mahuien, of Columbus, Ohio, was recently made assistant manager of the Sharon (Pa.) Clay Products Company and will be placed in charge of the manufacture of building and paving brick at the company's plant. Mr. Mahuien is a graduate of the Ohio State University and



has previously been associated with the Wayne Brick Company and the New Jersey Brick Company.

Louisville (Ky.) brick men are taking an active interest in local war preparedness operations. Isaac Tyler, president of the Tyler Building Supply Company, for one, has enrolled as a member of a home guards company which would offer its services for local emergencies. Numerous others directly or indirectly engaged in the burned clay business are taking part in the Officers' Reserve Corps campaigns, attending drills and classes for study.

Melville McE. Everhardt, president of the Everhardt Brick Company, of Massillon, Ohio, was in Cincinnati recently visiting the trade. Mr. Everhardt reported business booming in his section, especially in Massillon, where he says he sold 1,500,000 brick last season. His plant is located on the main line of the Pennsylvania and he is therefore more fortunate in receiving cars and getting them moved than many brick manufacturers. He reports that he has also made favorable arrangements for an adequate coal supply so that, with prospects bright for an excellent demand, he is well fortified against trouble for the coming season.

Arizona

The Arizona Brick and Tile Company is the name of a new concern that has taken over the factory of the Alhambra Brick and Tile Company, of Phoenix, Ariz. Mr. Harwood, of El Paso, Tex., is the promoter of the new company.

California

The Livermore (Cal.) Fire Brick Company is working on a large contract to furnish chrome terra cotta for use on three new office structures now being erected in Oakland, Cal.

Harry Mitchell, of San Francisco, Cal., has purchased the Hilton Brick Yards, near Santa Rosa, from the Thompson Brick Company. He plans to start operations about the first of May.

The Parker Brick Company, Santa Barbara, Cal., has doubled the capacity of its factory and will now turn out 3,000,000 brick daily. Manager J. Y. Parker says that the local demand is sufficient to keep the yard busy thru the summer.

The United Wrecking Company, of San Francisco, Cal., has purchased the entire plant of the Carnegie Brick and Pottery Company and is offering for sale one million fire brick and two million common brick. The Carnegie plant at Santa Rosa will be closed and sold later.

The strike of the workmen at the Stockton Fire and Enamel Brick Company's plant, which started on March 16, has been compromised. The men demanded an eight-hour day instead of the nine-hour schedule on which they were working, but returned to work when given an eight and one-half hour day. There was no change asked or made in the wage scale.

According to the plans laid at a recent meeting of the directors of the Union Brick and Tile Company, of Modesto, Cal., which was organized last summer, the factory of that company will be placed in operation in the very near future and many improvements made. After manufacturing but 18,000 brick last winter, it was closed because of faulty machinery, and to correct this condition, L. B. Klay has been engaged for a period of sixty days to install new machinery and place the plant on a profitable basis. The plant represents an investment of $20,000 and is located on the Tidewater Southern Railroad, two miles north of Modesto. The officers of the company are: D. W. Morris, president; N. E. Leek, vice-president; W. A. Downer, treasurer, and George T. McCabe, secretary.



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SAYRE & FISHER CO., Sayreville, N. J., large manufacturers of building brick, judge the machinery they use largely by the way it stands the test of the years—which is exactly the way they expect their own customers to judge "Sayre & Fisher Brick."

Sayre & Fisher Own 4 "Marions" —One in Steady Use For 22 Years

and ALL doing good work every day. The digging consists of such hard-to-handle materials as tough blue clay, and of course there is lots of it.

Perhaps there's work in *your* plant for "Marion, the Clayworker's Shovel." May we help you decide? No obligation to you!.

The Marion Steam Shovel Company, Marion, Ohio

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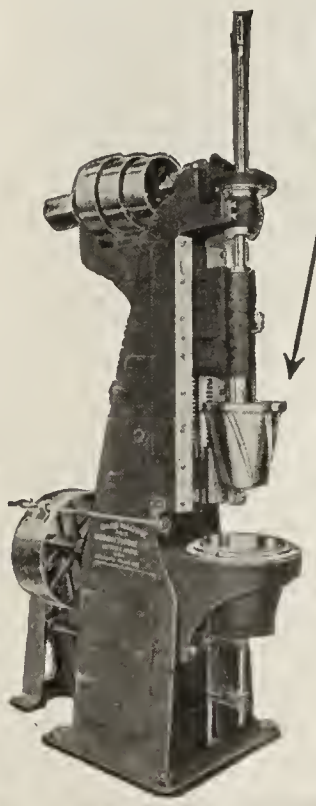
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Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

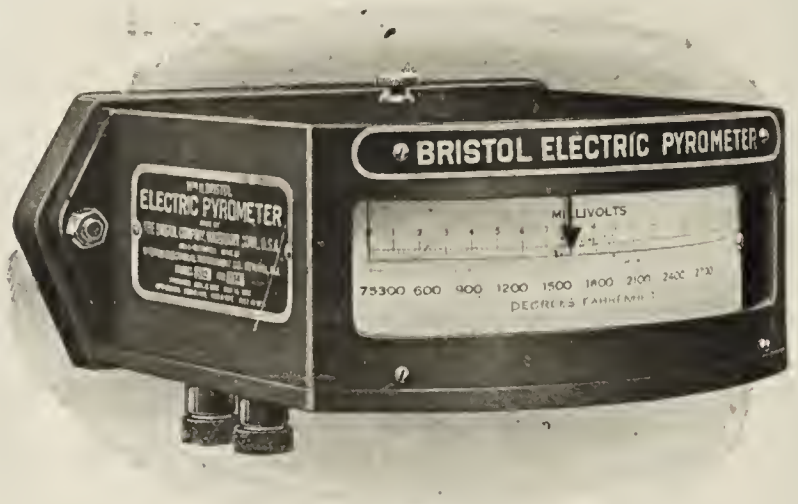
Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

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SAY "I SAW IT IN" BRICK AND CLAY RECORD



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Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

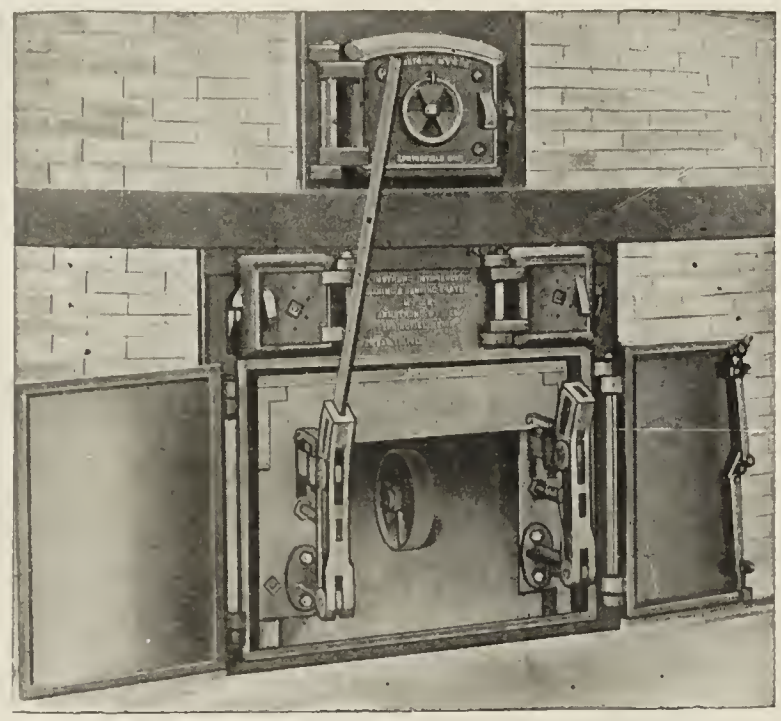
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Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

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SPRINGFIELD, OHIO

Delaware

The Far Better Brick and Tile Company has been incorporated at Wilmington, Del., with a capital of $2,000.

The close proximity of brick manufacturing plants in the Wilmington, Del., district to munition plants makes labor unsteady and costly. Coal at this point is bringing seven dollars at the mine. As much as fifteen dollars has been paid for No. 1 common brick.

In anticipation of the heavy demand that will be made for its product in the next few months, the James B. Oberly Brick Company, of Wilmington, Del., is planning to install an additional soft-mud machine and erect two exhaust steam dryers, each of which will have a capacity of 8,000 brick. When the new equipment has been added, the daily output of the plant will be raised from the present level of 40,000 brick to 60,000. In addition to these improvements, the Oberly company is about to purchase its fourth motor truck, to be used for local delivery purposes.

Illinois

A large fire clay mining company has been organized at Dayton, Ill., and has already purchased machinery costing approximately $25,000 for removing and preparing the clay. According to present plans of the newly organized company, which has taken over sixty acres of fire clay land located at Dayton, the material will be obtained not by stripping off the overburden but by drift mining. It is expected that the mine will be in full operation some time in May and that later a brick manufacturing plant will be erected. T. L. Hoganson, of Ottawa, is superintendent of the new industry.

Indiana

At a recent meeting of the board of commissioners of Knox County, Ind., held at Vincennes, it was decided to build roads in the county that will cost $172,000 and two of the roads will be made of brick, these being the first brick roads to be built in Knox County or southwestern Indiana.

The Standard Brick Manufacturing Company, of Evansville, Ind., has been given the contract to furnish the face brick for the Union Gas and Electric Power Station to be constructed at Cincinnati. The contract will call for about 755,000 brick.

As soon as the news that the United States had declared a state of war as existing between itself and Germany, reached Brazil, Ind., employes of the McRoy plant of the National Fireproofing Company erected a large flag pole at the plant and amid impressive ceremonies hoisted "Old Glory" to the top.

The Indiana Paving Brick and Block Company, of Brazil, Ind., has just completed extensive improvements at its plant and will resume operations at once. The factory has been closed since last fall while improvements were being made and machinery added which will about double the capacity of the factory.

Important changes have been effected in the John M. Leach Manufacturing Company, Kokomo, Ind., the ice and brick enterprises for a long time under one control, passing into separate hands. The brick business will be conducted by Howard H. Leach and will be known as the Kokomo Brick Works. Offices will be established at Ohio Avenue and the "Cloverleaf" railroad tracks.

The Southern Indiana Clay Products Company, which owns a large brick plant at Huntingburg, Ind., will soon



take over another brick plant in that city and, as reported in the April 10 issue of "Brick and Clay Record," in addition to this, proposes to build a third plant at Dale Ind., located between Evansville and Huntingburg on the Southern Railroad. Roy Edward Gaines, the Dale representative of the company, will assist in the building of the plant at Dale.

It is reported that in a short time there will be a conference of railway representatives in Chicago to take up the matter of lower rates for the brick manufacturers in the Evansville (Ind.) section. A conference was held at the last mentioned point a little over two weeks ago between the railway representatives and the officials of the Standard Brick Manufacturing Company and at that time the railway representatives promised to do something in the matter.

Henry C. Kleymeyer, general manager of the Standard Brick Manufacturing Company, Evansville, Ind., was elected president of the Kentucky Smoke Consuming Company at a meeting recently held in Louisville. The company controls the sale of rights on a patent smoke consumer for the state of Kentucky. Mr. Kleymeyer, in addition to being elected president, was also made a director of the company.

The Hoosier Clay Products Company, recently organized, has started work on the erection of its new plant at Hillsdale, about six miles north of Clinton. The capital stock is $225,000 and the company will manufacture brick, tile and other clay products. The officers of the new concern are: D. S. Stone, president; W. E. McKee, vice-president, and E. E. Asbury, treasurer and general manager.

The Indiana Brick Company, of Anderson, Ind., is still feeling the effect of the car shortage, receiving only about ten per cent. of the number of cars necessary to handle the normal output of its factory. Instead of being able to ship from ten to twelve carloads a day, normally required to keep up with the orders, only two and three carloads have been sent out daily during the last few weeks. Despite this situation, the company is keeping its full force employed and the factory is running steadily.

The Standard Brick Company, of Crawfordsville, Ind., has announced a plan for aiding its employes in combating the high cost of living problem during the summer months. The company has made arrangements to have a ten-acre tract of ground near the plant, about a mile north of Crawfordsville, turned over to its workmen for use as garden plots. More than half of the sixty men employed at the plant have already promised to take advantage of the offer.

Business with the brick manufacturers of Evansville and southern Indiana has been very brisk during the past few weeks and, according to John Andres, secretary and treasurer of the Standard Brick Manufacturing Company, trade is better now than it was at this time last year. However, manufacturers are not sure that trade will continue active all year, the war constituting an unknown factor in the situation. While the war has not halted the brick business, it is not known what material effect one of a year or more duration would have.

The brick manufacturers of southern Indiana are interested in the announcement of John C. Keller, traffic manager of the Evansville Chamber of Commerce, that there is to be a change in car service rates as the result of a conference between the National Industrial League and the American Railway Association. Mr. Keller gives it as his opinion that the new rates will be much to the advantage of the shippers, and will go into effect on May 1. After that date shippers will be charged $2 a day for every car held for the first five

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days, $5 for a car held on the sixth day and this sum for every day held after the sixth day.

Iowa

The Atlantic (Iowa) Brick and Tile Company, of which Charles E. Taylor is manager, recently purchased a motor truck for delivering its products.

Kentucky

Plans are reported to have been completed for a union passenger station which the Nashville, Chattanooga and St. Louis and the Chicago, Burlington and Quincy railroads will erect at Paducah, Ky. The railroads are purchasing and condemning property for the site of the structure, which will be an elaborate one.

The spring rush with the P. Bannon Pipe Company is now in full blast, according to A. P. McDonald, sales manager of the company, who states that the demand for hollow tile especially is very encouraging. The rapidly increasing cost of lumber is working to the advantage of hollow tile, which is being used very extensively in the construction of small homes. An increasing use of vitrified steam pipe conduits is predicted by Mr. McDonald, since this specialty is being more and more favored in laying the distribution lines of central heating systems.

About $30,000 in contracts for brick street construction have been awarded by the Louisville (Ky.) Board of Public Works for execution this summer. These contracts, as well as those for asphalt construction, were let at an increase of about ten per cent. above the level for last year's work. As a result of the increase the Board of Public Works has decided to defer letting other contracts until new estimates can be made and a decision can be reached regarding the best way to utilize the remainder of the appropriation for street construction.

A "Buy a Home First" campaign for Louisville, Ky., to be conducted during June, is being projected by the Louisville Real Estate Exchange, which is seeking to get the support of the various civic and commercial associations for the campaign. A fund is being raised to take care of the advertising costs and committees have been assigned to work up the various phases of the project. Public meetings will be held at which the general proposition will be discussed and all efforts in the direction of acquisition of residence property will be concentrated on the period set aside for the campaign.

Maine

The brickmaking firm of Baird and Peters is seeking the approval of the city government of Westbrook, Me., on the establishment of a brick plant in that city.

Massachusetts

Greenfield, Mass., leaping in a few years from a city with a population of 7,000 to one of 13,000 people, a railroad center of importance, paving its streets, building its homes, its factories and public buildings of brick, furnishes a valuable example of the possibility of making a rapid growth a permanent one, and not of the "mushroom" variety. Dyer Brothers, brickmakers at that point, find a ready sale for more brick than they can make, altho their machines operate constantly from the day the season opens until it closes.

The Hampden (Mass.) Brick Company, whose plant just outside the city is one of the most modern and best equipped in this section, is planning an extensive business this season, and unless the unforseen intervenes, it will hardly suffer dis-



appointment. Similarly, the Springfield (Mass.) Brick Company is preparing for an active season. Both companies have good contracts ahead and confidently expect to do more business than last year, regardless of the critical international situation now existing.

New Jersey

The Mehrhoff Brick Company, Little Ferry, N. J., recently burned its first kiln of brick for this season. All of the product was sold before the kiln was set. Labor is scarce but the migration of negro labor from the South is expected to relieve the situation somewhat.

Patterson (N. J.) building material men held their annual dinner on April 10. The attendance at the affair was unusually large and, due to the fact that after-dinner oratory was barred from the program, the members spent the entire evening in getting acquainted with one another. The association, which is a protective one and which has done very good work in systematizing credits and preventing losses among its members, includes men from both Passaic and Bergen counties. A large delegation of brick manufacturers and their representatives were present at the affair.

Shipping has been resumed at Ridgefield Park, N. J., with some yards asking as much as $12 a thousand for brick left over from last season. They are not only quoting that price but they are receiving it, and with the small available supply disappearing rapidly, and the demand growing steadily, it appears that there will be no end of difficulty encountered in securing material for constructional work. Buyers are sending in numerous inquiries and contracting for brick early to make sure that they will get what they need. If weather conditions continue as favorable as they have been the last two weeks, the first kilns will be burned long before the usual time.

All of the yards along the Hackensack River, N. J. are now being operated. Water is being pumped out of many of the pits, repairs are being made and in some cases sheds are being extended. Labor is scarce, but it has been said that some of the manufacturers from the Hackensack district have made short trips to the South, attempting to secure colored help, as they did last year. The call to arms by the government has affected conditions somewhat, but not to the extent that was at first thought probable. It is thought, however, that the next call will greatly affect the industry in that section. Not many of the owners and superintendents have, as yet, said just what they expect to do this season, but, with the shortage of brick in this locality, it is believed that each one will operate to full capacity. Those plants which have not burned brick during the winter are cleaned out completely, and there is but a small quantity of brick available.

New York

A fire recently swept the plant of the Troy (N. Y.) Fire Brick Company, causing a loss of $10,000. The local fire department was kept busy from one o'clock until six fighting the flames. It will take a month to repair the damage.

The Garner Brick Works, at Haverstraw, N. Y., is emerging from its winter activities and preparing for spring business. It operates one of the few plants along the Hudson that manufacture brick thruout the winter, and usually it has some material stocked to meet the heavy spring demand. This year, however, the demand has been so constant all thru the winter that the reserve is very small, and at the present time, the demand is much heavier than usual.

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BRICK AND CLAY RECORD

North Dakota

The large factory of the North Dakota Pressed Brick Company, located at Dickinson, N. D., was placed in operation recently with a full crew of men. The company has on hand a number of large rush orders for both brick and tile which, together with those that will develop during the season, will be sufficient to keep the plant operating to capacity. Manager W. J. Elliott states that arrangements are now being made for the manufacture of 30,000 brick and forty tons of hollow ware daily. The company's tile business will be especially active due to the fact that this company recently contracted with the General Fireproofing Company of Pittsburgh, Pa., for the manufacture of several hundred carloads of hollow building tile.

Ohio

Fifteen five-ton motor trucks have been added to the delivery fleet of the Barkwill-Farr Company. They are being put into service as fast as they arrive from the factories.

The 250,000 brick of several styles, to be used in the construction of the handsome building of the Fenwick Club, Cincinnati, Ohio, will be furnished by the Pursell-Grand Company.

John Peters, of the Petersburg Fire Brick and Tile Company, Portsmouth, Ohio, announces that work will begin immediately on the erection of four new kilns at the company's plant, each to have a capacity of 60,000 brick.

Four million brick will be used in the new Hotel Cleveland, to be constructed soon in the "Sixth City." The building will be faced with enamel brick and terra cotta trim, but the contracts for this work have not yet been awarded.

The city commission of Middletown, Ohio, at a recent meeting expressed itself as heartily in favor of the use of brick for paving the Dixie Highway north and south of the city, and a resolution to that effect will probably be adopted by the commission and placed before the county authorities, who have the last word as to the material to be used.

Beginning April 1, a new scale of wages became effective in Youngstown, Ohio, between brick contractors and their employes, embodying a five-cent increase and a weekly payday. The old scale was 70 cents an hour, the new providing for 75 cents an hour, with several concessions in the way of improved working conditions.

The C. and B. Clay Company, of Canton, Ohio, has increased its capital from $75,000 to $300,000, part of which will be used for making extensive improvements at the company's plant. Work will be started immediately on the construction of eight more kilns, which will increase the company's battery to twenty. The cost of the construction contemplated will be $200,000.

About a score of brick manufacturers and shippers met in Columbus, Ohio, recently to outline a plan to be followed concerning the recent advanced freight schedules filed by railroads in the Ohio territory. The rate increase is approximately fifteen per cent. Included in the list of manufacturers were those belonging to the buff group and also the red group.

Paving brick men of northern Ohio have won their fight for the use of brick in paving the streets of Con-



neaut. Strong arguments had been advanced for asphalt, until property owners awoke to the fact that if they used asphalt they would be hitting a home industry. The United Brick Company's paving brick plant is located at Conneaut, and employs a large number of the city's population.

Prizes in the competition conducted by the Barkwill-Farr Company, of Cleveland, Ohio, and explained in the April 10 issue of "Brick and Clay Record," for essays on the best use of hollow tile in residence construction, have been awarded, Miss May M. J. Fitzgerald, of Cleveland, receiving the first prize of $100. Several hundred essays were submitted. Other major prizes went to four other contestants, and forty smaller prizes were distributed to a like number of competitors for honorable mention.

Cincinnati-made brick and other materials are expected to receive a larger share of consideration in the future from Cincinnati builders on account of a movement started by the Builders' and Traders' Exchange of that city. The board of directors of the organization has taken the position that, other things being equal, home products should be given preference and the support of the chamber of commerce and other business organizations is expected. A committee, consisting of C. O. Dahler, H. B. B. Yergason and B. J. Shine, has been appointed to handle the matter.

The strike of union men working on the Cincinnati courthouse, growing out of a dispute between the carpenters and the metal-workers over which should do certain work, continues to hold up work on the building and the commission in charge of the project is considering several steps to bring the trouble to an end. It is suggested that suit could and should be brought against the Cincinnati Building Trades Council and the two unions which have caused the trouble, for the damage, amounting to $25,000, which the county has suffered by reason of the delay. Unless the matter is soon adjusted in some manner the contractor will be instructed to bring in outside labor.

Claiming that the high cost of materials and labor cannot be met this year, much of the Cuyahoga County paving program will have to be cut this summer, according to announcement from the county engineer's office. County commissioners, however, are in favor of pushing the schedule as far as possible. Commissioner Joseph Menning accordingly will seek to have estimates raised so that contractors may come within the estimates on their bids. He has informed paving brick men of the Cleveland district that he realizes the increased cost of materials and labor has necessitated the raise in estimates.

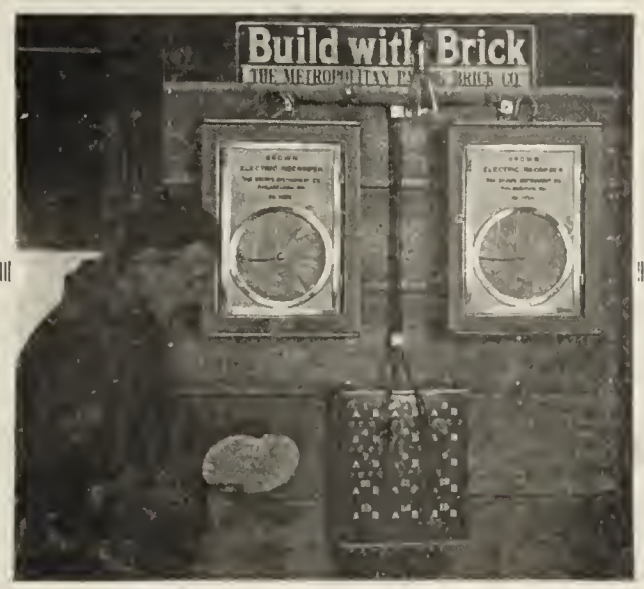
According to a recent announcement made by the board of administration, no superintendent will be named for the state brick plant operated by prisoners at Junction City, Ohio, until the price of coal recedes from its present high level. The state has come to the conclusion that even with the low cost of prison labor, brick manufacturing at the present time is not a profitable business. More than 2,000,000 brick are now piled at the Junction City plant and until these are disposed of, there is no intention of starting operations. The prisoners who have been working there have been returned to the state prison. It is questionable if the lease on the property, which will expire in a few weeks, will be renewed.

On the suit of James E. Conley, a stockholder in the Trimble Paving Brick Company, of Dayton, Ohio, to the amount of $20,000, and surety on the company's note for an equal amount, William H. Crume has been appointed receiver of the company. The petition sets forth that the



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COLUMBUS, OHIO

company is capitalized at $350,000, of which $338,150 has been issued, and that it has been manufacturing paving brick. It is stated that the company's assets exceed its liabilities, but that it is unable to secure a sufficient amount of cash to take care of current liabilities, and that there is danger of a number of suits. President R. T. Baker consented to the receivership, on behalf of the company. It is believed that with judicious management the temporary embarrassment may be tided over.

The car shortage is giving the entire brick trade thruout Ohio considerable trouble, and the worst feature of the situation is that, with the building season on and the summer ahead and promises of unprecedented activity coming from every source, there is no prospect of any improvement in the situation. Dealers in Cincinnati complain that they are unable to get shipments in rapidly enough and, as larger amounts of material are needed later in the season, it is not difficult to see that the irritation will increase, unless more cars become available than are anticipated. Not a few plants have been compelled to close on account of inability to get enough cars, their storage capacity soon becoming filled by the surplus of brick over shipments. This, of course, indicates a very limited production for the coming season, unless the car situation improves. Great difficulty in securing enough coal for fuel is also reported.

A recent order of the Ohio Utilities Commission gives shippers of fertilizer, farming implements, and all other commodities which tend to increase farm production, preference over other commodities. Thus brick manufacturers, who have been having their troubles in getting sufficient cars to make shipments, are still further hampered. Many of the factories are receiving only twenty-five to thirty-five per cent. of the number of cars required and the situation is getting worse instead of better. In the meantime, consumers are clamoring for brick, the spring building season being at hand and much work having already been started. But there are no immediate prospects for improved conditions. Shippers on the Baltimore and Ohio, the Zanesville and Western, and even on the Pennsylvania lines are suffering from lack of equipment. Orders now on the books of the face brick manufacturers are sufficient to tax present shipping facilities for the present year, unless some betterment in the car supply develops. Sales managers are devoting most of their attention to traffic matters since that is now the branch of the business requiring closest attention.

Oklahoma

The Okmulgee (Okla.) Brick Manufacturing Company has been incorporated by W. B. Pine, J. W. Hammond and J. W. Mabrey, with a capital stock of $40,000. The newly organized concern is planning to construct a clay products manufacturing plant very shortly.

Pennsylvania

State Highway Commissioner Black of Harrisburg, Pa., will receive bids until May 3, for furnishing paving brick to be used in road construction thruout the state.

The value of Pennsylvania's brick and tile output for 1916 is estimated at $21,327,846, while that of other clay products produced in the "Keystone State" amounts to $2,487,147.

The Lehigh Brick Company, of Allentown, Pa., which was recently organized with a capital of $250,000, has awarded the contract for the erection of its plant in Salisbury Town-



ship. The plant will have an initial capacity of 50,000 brick a day.

The big No. 4 plant of the Joseph Soisson Fire Brick Company, at Bolivar, Pa., was burned to the ground on April 8. The fire started in the main building and swept thru the entire plant, destroying everything except the kilns. The plant was re-opened a few months ago following a prolonged shutdown, and the manufacture of silica brick had been commenced. According to the present plans of the company, the factory will be rebuilt at once.

South Corolina

The Edisto Brick Company of Orangeburg, S. C., has been chartered with a capital of $5,000. The officers are: G. C. McLees, president; A. B. Salley, vice-president, and E. H. Blackman, secretary and treasurer.

South Dakota

Manufacturing operations were begun recently at the plant of the Aberdeen Pressed Brick Company, Mina, S. D. New kilns are being constructed at this company's plant which will increase its kiln capacity about 250,000 brick. Orders have already been booked which will keep the factory busy well into the summer. Manager H. L. Hasvold recently received a contract to furnish the brick for a new school building being constructed at Ismay, Mont.

Tennessee

A cleverly designed and very attractive folder received by "Brick and Clay Record" announces that the Jackson (Tenn.) Fire Brick Company has purchased the plant of the Hunt Pressed Brick Company, successors to the Southern Tile and Brick Works at Jackson, Tenn., the good will of the Hunt company and the name of the well known "Jaxon" fire brick being included in the transaction. All of the clay used in the manufacture of the "Jaxon" refractory products comes from the company's own mines in Tennessee.

Texas

The Green Press Brick Company has been incorporated at Ferris, Tex., with a capital stock of $30,000 for the purpose of manufacturing brick. The incorporators are W. F. Green, C. F. Pratt, R. H. Green, and others, all of Ferris.

A contract calling for 325,000 brick was recently awarded to the Acme Brick Company, Fort Worth, Texas, by the Tarrant County commissioners. The brick are to be used in the construction of the new Tarrant County Criminal Courts Building.

Washington

The Walla Walla (Wash.) Construction Company is to open for the season very soon. Several good sized orders have been received, including one for 85,000 brick to be used in the construction of the Colfax St. Ignatius hospital.

The Washington Brick, Lime and Sewer Pipe Company is to re-open its sewer pipe, drain tile and flue lining plant at Spear, near Spokane, within a few weeks. A number of large orders have been received and a force of sixty-five men will be put to work at once.

The Granger Clay Products Company, of North Yakima, Wash. has received orders calling for more than 3,000,000 brick. Present bookings will necessitate day and night operations for several months if deliveries are to be made on time. A. P. Peterson, manager of the plant, looks for a very prosperous year.

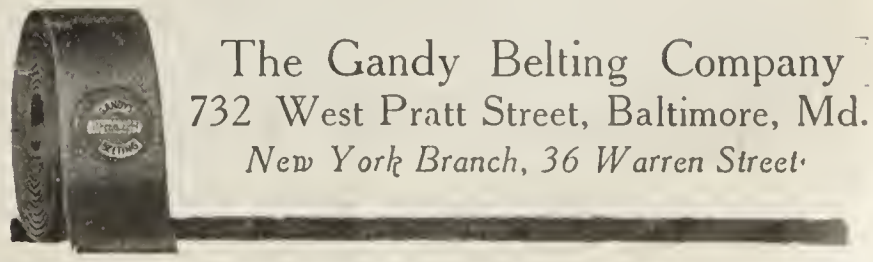
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Gandy Belts hug the pulley *tightly*—transmit the *Maximum* power—without *slip*.

Gandy Belts in all kinds of service and under the most trying conditions—live up to their remarkable thirty-nine year reputation. Take advantage of our service department. We will gladly advise you—just how you can use Gandy Belts to your advantage. There is no obligation. Write today.



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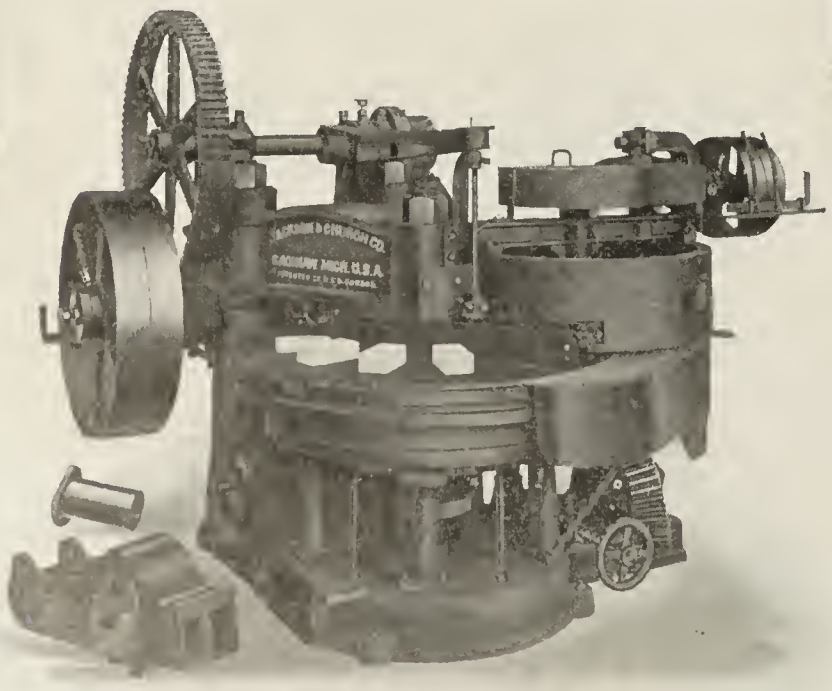
All you need is sand (95%) and hydrated lime (5%) —and you can use sea sand, lake or river sand, bank sand of varying degrees of size and impurity, as well as sand from crushed rock.

Send us a one-pint sample of sand available and we'll tell you whether it is suitable. Or, send a cubic foot sample and we'll make a sample brick as a test.

Our capital and our reputation are back of our guarantees. Our stockholders own and operate five plants, while they are also indirectly interested in others. In this space we will tell you of concrete examples of successful Sand-Lime Brick plants where our machinery and the "Saginaw" process have been used. In the meantime—let's talk things over.

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Saginaw **Michigan**



The "Saginaw" Rotary Table Brick Press

The Coeur d'Alene Clay Company is to re-open its Atlas and Hueter (Wash.) plants, the new board of directors having decided on this action at a recent meeting. Otto Nelson has been chosen to serve as president for the next twelve-month; Edward S. Smith, vice-president; H. H. Barton, secretary, and Jacob Jessen, treasurer. The non-officer members of the board of directors are J. H. Kirk, C. K. Lithe and Frank Post. An increase in the capital stock of the company to $100,000 is being discussed.

Wisconsin

Thomas Dever, sales manager for Ricketson and Schwarz, Milwaukee, Wis., has returned from a trip thru the state.

The Wisconsin Face and Fire Brick Company has erected a new warehouse at Thirtieth and Galena Streets, Milwaukee, Wis., which holds between 500,000 and 600,000 brick. This company has been awarded the contracts for brick to be used in the new East Milwaukee and Racine Telephone exchanges.

George J. Schwarz, of Ricketson and Schwarz, Milwaukee, Wis., is busy creating a demand and getting orders for paving brick out thru the state. Indications are that more brick will be used this season for paving in Wisconsin than ever before.

The annual meeting of the stockholders of the Barron (Wis.) Brick Company was held recently and the following officers elected: J. P. Kohl, president; Otto Berg, vice-president, and Martin O. Berg, secretary and treasurer. The directors chosen at this meeting were A. G. Strand, Otto Berg, John Ferris and L. K. Sather. G. E. Koerner has been employed as salesman by the company.

* * *

MAKING *a* TERRA COTTA CORINTHIAN CAPITAL

(*Continued from Page* 860.)

In a similar way the two leaf courses are treated, so that in all, there will be two new pieces in each course.

Thus twenty-three different pieces are needed to make as many capitals in these three pilaster positions as the plans demand. All other variations in position which the architect may contrive can be constructed on the same principles and with the same methods as the three above capitals which are found the most common in the pilaster type of the Corinthian capital.

ROUND AND PILASTER CAPITALS COMBINED

Since there are two distinct types of the Corinthian capital, it remains to show how the position combining them is effected. The methods adopted for the formation of the corner positions of the pilaster are used again. The round capital emerges from the pilaster causing a blending of ornament on two sides. In this form it will be observed that the corners of the pilaster seem to join the middle sections of the round capital, enabling the model maker to eliminate the rest of the round capital. It is only necessary to set up the right and left corner members of the pilaster on either side of a single middle section of the round capital and fill in the intervening space with clay and plaster for the formation of the new pieces. After jointing and cutting down, these pieces are molded as the others, creating the means of reproduction in terra cotta.



RELATION *of* METHODS *of* MANUFACTURE *to* DURABILITY

(*Continued from Page 857.*)

them together. As the heat treatment is continued, these films become thicker, the unfused particles become smaller, and finally the small pores that remain are filled up.

This is the highest point to which the heat treatment should be carried. If this point is exceeded, so much glass may be formed that the ware starts to fuse and becomes deformed. In fact, with some clays, notably limey, the heat range between vitrification and deformation is so short that it is not safe to attempt to vitrify the wares at all.

THE RESULT OF POOR OXIDATION

Now, if oxidation was not properly conducted and any carbon dioxide, carbon or sulphur was left in the clay, swelling will take place as vitrification progresses. Except in cases of gross mismanagement, no carbon dioxide or carbon will be left in claywares when vitrification begins. On the other hand, even when considerable care is taken during oxidation, sulphur will be present in many clays when vitrification takes place. It may be present as FeS or $FeSO_4$. The sulphur present as FeS may form SO_2 gas by robbing some ferric oxide of part of its oxygen. The SO_3 in $FeSO_4$ may be replaced by SiO_2, which is a much stronger acid radical in molten magmas than SO_3. The formation of either of these gases in a vitrifying piece of ware can have only one result—the piece of ware bloats or swells.

This bloating takes place whenever the gas is generated in a dense piece of ware, whether there is a black core present or not. It was at one time thought that the black core had something to do with the bloating, but the only connection between the two is that the black core indicates that oxidation has not been complete and, therefore, black-cored ware is more liable to contain sulphur and to swell when vitrification ensues. This is really the basis for the rather wide-spread belief that ferrous iron is a decidedly stronger flux than ferric iron.

FINE GRINDING ASSISTS VITRIFICATION

For making vitrified ware, clays must be more finely ground and more carefully sieved and blended than is necessary when porous material is being manufactured. Fine grinding and sieving gives a raw clay of fine grain and homogeneous composition, in which the fluxing materials are uniformly distributed. In ware made from fine-grained clay, the pores are small and easily filled with molten glass during the process of vitrification. Since the fluxes are uniformly distributed, all pieces of the ware that get the same heat treatment vitrify at the same rate.

Using the same clay, vitrified ware can be made at a lower temperature where the stiff-mud process of manufacture is used than is possible when the dry-press process is employed. In manufacturing by the stiff-mud process, the plastic clay is subjected to a kneading process under pressure, by means of which a structure is produced having very fine pores and in which each mineral grain is in close contact with several other grains. This close contact promotes chemical action between the grains and hastens the production of the glassy films that produce vitrification. Altho ware made by the dry-press process is subjected to great pressure and may be quite dense or heavy, the pores are large and there is lacking

KOPPEL



No Labor-Shortage At This Brick Plant

In this plant Koppel Electromobiles have not only solved labor shortage but also save hundreds of dollars annually.

They are used from the cutting machine to the drying room, from the dryer to the kiln, and from the kiln to the freight car.

Koppel V-shaped dump cars and dinkeys also carry the shale to the shale room.

In many plants Koppel brick and dryer cars of all types are used with Koppel track to transport the brick.

Let us tell you how to solve labor shortage with better results.

Write for Electromobile and Industrial Railway catalog.

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Selden "IN-BUILT QUALITY" Trucks

are exceptionally well adapted to perform the heavy duty required of a motor truck in the Clay Products Industry. They are built to endure for a long time the hardest kind of service to which a motor truck can be put.

Compare them part for part with other "quality" trucks of the same rated capacity and you will find in

SELDEN TRUCKS

bigger, better construction—greater strength—greater hauling power—greater speed—greater ability to render long, profitable service.

When you consider the low cost at which Selden Trucks can be operated, they actually become ***low-priced*** trucks—quality trucks at a cost that will average in the long run even below that of inferior trucks.

Ask us to give you specific information on how Selden Trucks will effect economies in your business.

Selden Truck Sales Co.
Rochester, N. Y., U. S. A.

that uniformly close contact between the individual grains found in ware made by the stiff-mud process. Therefore, ware made by the dry-press process must be subjected to a more severe heat treatment to produce the same degree of vitrification than is necessary in ware made from the same clay by the stiff-mud process.

FIRING FOR COLOR

The kind of flame used during the finishing or vitrification period will depend on the color of ware desired. If a clear red is wanted, enough excess air must be used to keep smoke out of the kiln. Fifty per cent. will be enough if the fires are carefully handled. If darker colored wares are desired, a smoky flame is used.

We have called the final period of the burn the finishing or vitrification period, but of course, we do not mean to imply that all wares are brought to a completely vitrified, or glassy state. The density to which the ware is burned must depend on the use to which it is to be put. For many wares, complete vitrification would not be desirable. It has been found in testing wares made from a given clay that strength, toughness, and resistance to freezing increases with a decrease of absorption down to the point where the absorption is quite low, generally only a few per cent., but that from this point on strength and toughness decrease. In comparing wares made from different clays, absorption is no index of strength, for it has often been shown that pieces of ware made from different clays may have the same absorption but vary widely in strength and vice versa.

DEFINITION OF VITRIFIED WARE

There is, in fact, some question as to what the expression "vitrified ware" means when applied to commercial clay products. Professor Edward Orton, Jr., of the Ohio State University, has proposed the following as a legal definition of vitrification:

"Where the word vitrified is used in a contract or agreement as an adjective in describing the properties of a clay product, without further definition in the contract, it shall mean that the product shall have attained in the firing process such a degree of structural density that its mean absorption will not exceed three (3) per cent. of its own initial weight of pure water, when subjected to absorption tests of forty-eight hours, complete immersion in cold water, or three hours' immersion in boiling water. Not less than three tests shall be made in determining the mean absorption, and no single test may exceed the mean by more than one-half per cent. Neither the possession of the visual properties or appearance of a glass, nor specific gravity shall be implied as an attribute of vitrification." Trans. Am. Cer. Soc., Vol. XVI, page 511.

However, with all due respect to Professor Orton, we must remember that, since certain grades of ware in various classes of clay products are commercially classed as vitrified, it would be impracticable to set standards for the kinds of ware to be classed as vitrified that could not be met by at least a fairly large majority of the manufacturers: the maximum absorption a piece of clay ware may have and still be classed as vitrified must depend on the kind of ware.

Manufacturers of china agree generally that vitrified china should have practically no absorption. A vitrified paving brick should have an absorption of not more than three per cent. According to the specifications of the American Society for Testing Materials, a vitrified building brick should not have an absorption of more than five per cent. A committee of the same society is working on standard specifications for drain tile, and it is probable that the same limit of absorption (five per cent.) will be set for this class of ware. We must conclude that the word "vitrified," as applied to clay products, has come to mean that the ware to which the adjective is applied has low absorption.



MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Crown Radiation Minimized

In the last issue of "Brick and Clay Record," on page 746, there appeared an article on the "Construction and Operation of a Thirty-six Foot Kiln," written by T. N. McVay, superintendent of the Streator Brick Company.

In many ways a radical departure from accepted practice was made and found successful.

In particular the use of the mineral Kieselguhr as an insulating material for the crown is interesting, and the following is an excerpt regarding its use:

"The most unusual feature of this kiln is the novel construction of the crown. Clay-products manufacturers have long continued to construct the hobs of their kilns three or more feet in diameter, to prevent radiation, and yet, at that point of the kiln which most needs insulation against loss of heat thru this source—the crown—they have constructed a nine or thirteen-inch covering thru which the heat finds easy passage.

"In order to minimize the loss suffered thru this source we have built the crown of our thirty-six foot face-brick kiln entirely of fire brick set on end, upon which we have then placed a two-inch insulating layer of kieselguhr, and have finally platted the crown with a course of floor tile. An enormous amount of heat has been saved thru this method of insulation. When the kiln is under full fire, the crown is much cooler than those upon the kilns which are platted only with common brick. In fact, it is possible to hold your hand on the crown when the kiln shows an inside temperature of 1,900 degrees (Fahr.)."

In support of this it may be said that C. B. Harrop is convinced by his research work that over 40 per cent. of the heat generated in a kiln could be saved by proper insulation.

Kieselguhr certainly affords splendid insulation, as it shows one-tenth of the heat conductivity of ordinary fire brick.

It is marketed by The Kieselguhr Company of America at 11 Broadway, New York City.

* * *

About Rubber Belting

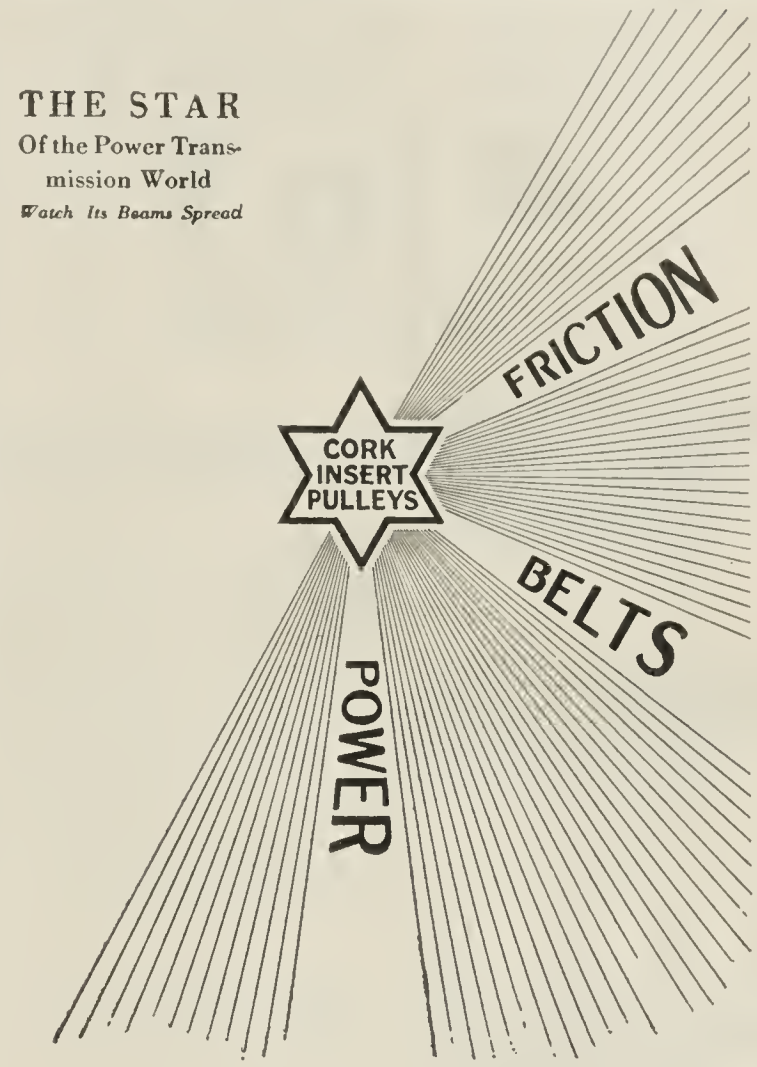
Properly made rubber belts have great gripping power; hence great transmitting capacity. They are made uniform in thickness and will endure without injury for an exceptionally long period of time. They can be used successfully in dry, damp or wet places and can be exposed to the weather.

To obtain the full value from a rubber belt, *"buy the best;"* provide pulleys of ample diameter and face; avoid excessive strain; see that the strain is equally distributed over the whole width of the belt, and that the fastenings are so made as not to pull out the ends of the belt; also avoid having the belt unnecessarily exposed to excessive heat or to grease or dirt; and shift slowly and carefully.

Rubber belting is greatly improved and its durability increased by the application of a coat of Quaker City Belt Dressing. This dressing is especially valuable in cases where the rubber has peeled from the surface of the belt. Do not use animal oils or grease, nor castor oil, as they are injurious to rubber belts.

Belts to be adjusted to the pulleys should have the ends cut square and true, and be cut shorter than the distance around the pulleys by ⅛ of an inch for every foot, when measured with a tape; a steel tape is best.

All belts should be put on with proper tension, but they should not be stretched too tight, as they are apt to pull the shafting out of alignment. With wide belts this can be done



The SIX Points of SAVING—

POINT 3

FRICTION

10% or more of the power developed is, in many places, eaten up by the friction directly due to tight belts.

How are you going to reduce this loss?

How can you avoid tight belts?

CORK INSERT PULLEYS

will increase the power of your drives 25% and thereby transmit your power with greatly lessened belt tension and reduce friction loss.

CORK INSERT pulleys enabled the Washburn Wire Company to remove an expensive belt tightener and get improved results. CORK INSERT pulleys stopped the hot bearings on J. A. Dickerman's blower. Ever since August 1912 CORK INSERT pulleys have been giving the Blackstone Mfg. Co. satisfactory service without any repairs on 43 short center, almost vertical motor drives under conditions so hard that the mill expected to have to repair them at least once a year. Many other instances of Cork Inserts' conquests of friction losses can be cited.

WRITE US TO SHOW YOU how Cork Inserts can reduce friction and cut operating costs *for you.*

The Cork Insert Co.
168 Federal Street
Boston, Mass.

THE SLIP-STOPPING PULLEY



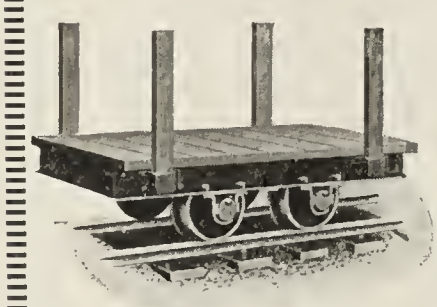
THE WATT 4 in 1 TRUCK



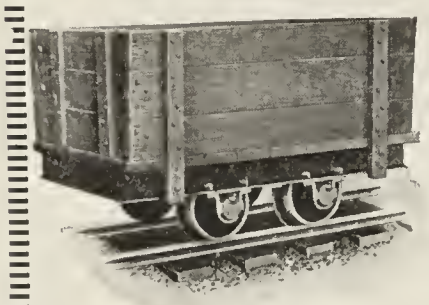
Truck No. 1.



Truck No. 2.



Truck No. 3.



Truck No. 4.

The Magic Trick

If you are in possession of truck No. 1 all that is necessary is to pass your hand several times over it, say the magic word—"Presto Change"—and you have truck Nos. 2, 3 or 4, whichever desired.

How Is It Done?

Truck No. 1 is so constructed that with a few slight and quick changes it is possible to transform it into any of the other 3 trucks as shown here. Surely you have use for one of these trucks! Write for particulars.

We Manufacture

Clay and Dryer Cars

Mine Cars (wood and steel), Ore Cars, Quarry, Contractors' and Industrial Cars, Skips, Ore Buckets, Couplings, Car Wheels, Axles and Trucks complete.

Our plant is the largest in the world devoted exclusively to the manufacture of Mining and Industrial Cars.

—Catalogues—

The Watt Mining Car Wheel Co.

Barnesville, Ohio, U. S. A.

best by the use of clamps secured firmly to each end of the belt, and drawn together by bolts running parallel with and outside the edges of the belt. There is no danger of breaking, as a belt of the better quality—six inches wide and three-ply thick—will stand a strain of five thousand pounds, and other sizes in proportion. Should the belt slip from dust or other causes—which seldom happens—it should be lightly moistened on the side next the pulley with boiled linseed oil; if one application does not produce the desired effect, it may be repeated.

If the belt is to be shifted from one pulley to another, rollers should be placed on the shipper on each side of the belt, in a diagonal position, bringing the upper ends of the rollers as near together as possible to clear the belt, and diverging from each other at the lower end as far as may be; thus, when the shipper is used, pressing upon the face of the belt instead of upon the edge. This plan slips the belt much easier than the old method, and entirely prevents the liability of injuring the edge.

The seam side of the belt should not be placed next to the pulley.

Quaker rubber belting is made and marketed by The Quaker City Rubber Company of 629 Market Street, Philadelphia, Pa.

* * *

Mortar Colors

To make recommendations to your customers about the mortar colors to be used with "your" brick in their wall, may be a means of safeguarding your own good reputation.

A mortar color that fades or runs, or in some other manner causes an unsightly disfiguration on the face of the wall, may easily be charged to the brickmaker or the brick broker.

Sometimes success lies in a mastery of the details, the little things, and if you are careful to suggest the use of dependable colors for the mortar, which is one of the "little things," an unsightly job may be prevented, and the reputations of the brick and the selling agency held secure.

Anchor Brand Colors made by C. K. Williams and Company, Easton, Pa., have demonstrated dependability for years, and have made many good brick jobs, better.

* * *

Reducing Explosive Costs

The present condition of the explosives industry, on account of the shortage of glycerin and consequent high prices, is such that the careful and economical use of dynamite is of utmost importance. Any waste, due to the use of too strong an explosive, the use of one containing a high percentage of nitroglycerin where one containing less will do satisfactory work, the careless placing of holes, etc., results in a serious loss to the consumer. Now is the time when an efficient blaster, who places and charges his holes carefully, is particularly valuable.

A great many users of explosives have the belief that nothing but nitroglycerin dynamite or gelatin will be satisfactory for their work, and can see no good reason to change. But the present difference in price between the Extra or Ammonia grades of dynamite and the corresponding strengths of nitroglycerin and gelatin dynamites, is such that nearly all users of high explosives are justified in giving Hercules Extra Dynamite a trial. In over 90 per cent of cases, this will result in a great saving in powder costs.

The use of explosives with a small nitroglycerin content has a twofold effect. It saves on first cost, due to the lower price, and it conserves the glycerin supply, thereby tending to hold down prices on all explosives containing nitroglycerin.

REPLACING NITROGLYCERIN

The Hercules Extra Dynamites are explosives in which some of the nitroglycerin has been replaced by other explosive ingredients, principally nitrate of ammonia, without affecting strengths, keeping qualities, bulk, etc. Nitrate of ammonia being an oxidizing agent composed entirely of gaseous elements, is a very effective ingredient for explosives. To a certain extent it can be used to replace the nitroglycerin in a dynamite without reducing its strength. Under present conditions, nitrate of ammonia being much cheaper than nitroglycerin, its use in high explosives enables



us to turn out a series of dynamites whose strengths are just the same as the standard grades of nitroglycerin and gelatin dynamite, at a lower cost, and they are consequently sold at a lower price.

The Hercules Extra Dynamites are not quite as quick in their action as the corresponding grades of nitroglycerin dynamites, but with few exceptions can be substituted for them. Hercules Extra Dynamite can be relied upon to give excellent satisfaction in connection with shale and clay blasting.

Hercules Extra Dynamite gives off practically no noxious fumes, which recommends it for underground work. It cannot be ignited by the side-spit of cheap, broken or defective fuse; therefore burnt charges are unknown where it is used. It is also one of the safest high explosives as regards handling and use, and where it is introduced accidents are reduced to a minimum.

The use of nitrate of ammonia in an explosive cannot be expected to improve its resistance to moisture, but the amount in Hercules Extra Dynamite is not enough to affect it, except on the very wettest work. Its keeping qualities are assured by dipping the cartridges in melted paraffin after filling, in order to make them moisture proof. This does not mean that they should not receive the same care in storage as the other kinds of high explosives. They should be stored the same as others, in cool, dry, well-ventilated places.

The small percentage of nitroglycerin in the Extra Dynamites naturally causes them to be rather dry in their texture and somewhat free-running. This puts them at a disadvantage when compared with the plastic gelatins for loading holes pointed upward. However, with a little care on the part of the miner or blaster, they can be loaded satisfactorily in such holes. If a single cut is made in the side of a cartridge so that the ends are left intact, the dynamite will stick in place when pressed home. The ends of the cartridges act as plugs and prevent the escape of powder.

The Hercules Powder Company of Wilmington, Delaware, manufacturers Hercules Extra Dynamite as well as other grades of blasting powders.

Southern Representative for International

The reliability of a concern is reflected by its agents, and high-class business is only gotten thru high-class men.

The International Clay Machinery Company has obtained the services of A. A. Vaughan (known as Colonel Vaughan by his friends) to represent it in the South, covering the Carolinas, Georgia, Florida, Mississippi, Alabama, Tennessee and parts of Kentucky and Virginia.

Mr. Vaughan is a southern clayworker of many years standing, but for the last few years has been engaged in the raising of stock on his Spartansburg, S. C., plantation.

Mr. Vaughan will be welcomed back to the industry by his many friends and should be a most potent addition to "International Service."

Being a southerner, he knows to a marked degree the needs of the southern clayworkers and will specialize in stiff-mud and soft-mud machinery, dryers, both producer gas and direct fired, as well as the Producer Gas Fired Continuous Kiln.

Big Hole in Earth is Important Cog in Duplex Sales Organization

"That gravel pit over there is one of the most important cogs in our sales organization," declared H. M. Lee, president of the Duplex Truck Company of Lansing, to a western state dealer who was being shown thru the motor truck plant recently.

"Yes sir, I mean every word—that gravel pit sells Duplex trucks and it sells a lot of them. It offers more convincing arguments than any silver tongued salesman I ever met. I wouldn't part with that gravel pit for a lot of money."

Then Mr. Lee gave a demonstration of Duplex truck pulling power at the gravel pit.

A Duplex truck was loaded with 3½-ton burden and a trailer carrying 4 tons was attached. The truck was taken down into the pit where there was a pool of water nearly a foot deep surrounded by soft earth into which the truck wheels sank nearly to their hubs. At one time all of the

It is quite an ordinary occurrence for the

Thew Automatic Shovel

to dig enough clay for 100,000 brick, at an average daily cost of $9.00 to $10.00.

You can't do that with hand labor at four or five times this cost.

The above cost includes: Engineer, fuel, labor, supplies and depreciation.

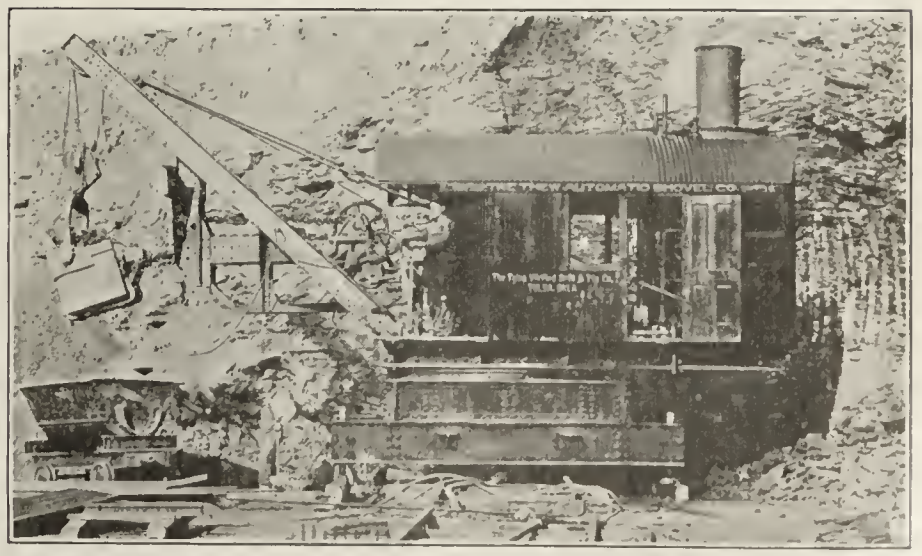
Thew clay pit results are remarkable. We will be glad to send you authentic data that will make you eager to discard present methods.

Gasoline—Electricity—Steam

Write for Circular 27-C.

The Thew Automatic Shovel Co.

Lorain, Ohio





The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

wheels but the right front one were in such soft earth that none could find traction. However, the entire power was automatically thrown, by the Duplex-Adler locking differential, to the front wheel which had a "footing" and the 7½-ton load on the truck and trailer was hauled not only out of the pit but up a steep embankment.

After the truck had maneuvered in and about the gravel pit for a half hour and the strenuous tests were completed the dealer asserted to Mr. Lee that he was thoroly convinced of the selling ability of the gravel pit.

"If I could only get a thousand prospective motor truck buyers gathered about the gravel pit, I would wager that the gravel pit would sell 999 of them Duplex trucks," declared Mr. Lee.

Bonnot's Increased Capacity

The Bonnot Company of Canton, Ohio, which manufactures a line of machinery for use in brick, fireproofing, pottery and similar plants, has increased its capital stock from $100,000 to $500,000 for the purpose of providing finances for increased business.

A. A. Oldham, secretary and treasurer of the company, states that considerable enlargements have been made during the last year and contracts are being let for further additions.

The increased stock has all been taken up by the present stockholders and is fully issued.

Sand-Lime Brick

During the past few years, sand-lime brick has been developed to an extent that places it clear beyond the experimental stage. In fact, sand-lime brick are today being accepted in every state, and particularly in the large building centers, by architects and engineers.

This success is very largely due to the faith and continuous efforts of the Jackson & Church Company of Saginaw, Michigan. A few years ago, even in the face of adverse conditions, this company continued to use its capital in the development of the sand-lime brick business and today they are operating five sand-lime brick factories in various sections of the country. Also they are indirectly interested in several others.

For the manufacture of sand-lime brick the plant buildings can be constructed at very low cost, and the machinery and process are very simple. It is also well to know that low priced labor is used almost exclusively. The weather makes no difference—a sand-lime brick plant can be operated thruout the entire year and at night as well as day.

Of the large number of sand-lime brick plants now operating, some of them are using sea sand, some of them lake and river sand and others bank sand, in all degrees of impurity and sizes. It has also been demonstrated that sand from crushed rock can be used with perfect satisfaction.

Some of the characteristics of sand-lime brick are that they improve with age, do not expand from heat, they have



Syracuse Factory Building Constructed of Sand-Lime Brick

SAW IT IN BRICK AND CLAY RECORD

great crushing strength, do not scale, and are unaffected by acids.

Inasmuch as sand-lime brick are made from sand and hydrated lime mixed in the proportion of ninety-five to five, the natural color is a grayish white. However, they can also be made in any color desired by mixing lime-proof coloring material which can be obtained in a quality that is absolutely proof against fading under any exposure.

Jackson and Church Company have much valuable data to submit to anybody who may be interested in sand-lime brick.

Factory Cost Accounting

Factory accounting is a rapidly developing field of business science—so much so that a book may be modern and adequate when published and hopelessly antiquated five years later. The accountant whose training was received several years ago is thus seriously handicapped, unless he keeps in touch with the latest advances of his profession.

Recent improvements have been largely in the direction of reducing the cost of accounting processes and in the development of mechanical aids.

A new book has just been published on Factory Accounting which, as a general introduction to the subject, will immediately supersede everything previously published. "Five years ahead of anything else" is the comment of one expert on reading the manuscript of Factory Accounting.

The author is Frank E. Webner, C. P. A., whose varied career covers the entire period of the development of scientific accounting. Starting with the installation of an accounting system for the dining-car department of the Chicago & Northwestern Railway in 1887, he was later associated with the Deering Harvester Company and with various live-stock and packing-house interests and engaged in public practice.

He has been a lecturer in the Universities of New York, Cincinnati and Wisconsin; in Harvard; and in Pennsylvania State College. He has also been a contributor to the leading accounting journals. His standard work on Factory Costs is well known to the accounting profession.

Mr. Webner holds a C. P. A. degree from the University of Illinois and from the state of Ohio. There are few lines of production, including clay plants, for which he has not prepared accounting plans. Mr. Webner's position in the accounting world is such that the authority of Factory Accounting is unquestioned.

Factory Accounting is a practical guide and not merely a reference work for experts. The style is easy and animated and the explanations lucid and simple. More than 80 figures are inserted, mostly forms taken from the author's varied practice. Many of these are filled in with actual cost figures and are so related to each other that the readers may follow the same transaction from chart to chart until the final outcome is reached.

Cork Inserts

Confidence in the material that you manufacture will, if properly manifested, create a like confidence in the buyer.

Recognizing this fact the Cork Insert Company of 168

Date _____

THE CORK INSERT CO.,
Boston, Mass.

Please let me have your proposition for a guaranteed saving on this drive:

Drive is from _____ (MOTOR, ENGINE OR LINE SHAFT) to _____ (MACHINE—NAME AND SIZE—OR SHAFT)

Nature of drive _____ (HORIZONTAL, VERTICAL DIAGONAL, QUARTER TURN OR CROSSED) Distance on centers _____ HP _____

Driving Pulley: Diameter _____ Face _____ Speed _____

Driven Pulley: Diameter _____ Face _____ Speed _____

Belt: Kind _____ Width _____ Speed _____

Troublesome Conditions if any _____

It is understood that this inquiry places me under no obligation of any sort.

Writer's Name _____ Position _____

Firm Name _____

Address _____

A "Guaranteed Saving" Proposition

Producer Gas

Has established itself as the very best fuel for the burning of clay products, and the present intense interest of plant managers indicates that during 1917 there will be a much greater use of Producer Gas than ever before.

This condition has not come about suddenly, but is the result of several years' earnest effort. And today Producer Gas is accepted because

1st. It effects a large saving of coal and labor.

2nd. Good gas is made from some coals now considered of very low value.

3rd. It burns with a long, lazy flame.

THE

R. D. WOOD

AND COMPANY

Gas Producer

is being used in many clay product plants and is giving eminent satisfaction. Thirty years given to the building of producers has been of inestimable value in helping to develop the kind of producers best suited to the needs of this industry.

The R. D. Wood & Co. latest development is their STIRRING PRODUCER, especially recommended for large plants. The Hand Stoked producer can also be furnished—particularly adapted to use on smaller plants.

WE WILL GLADLY SEND YOU INFORMATION THAT OUGHT TO BE OF VALUE TO YOU.

R. D. Wood & Company

400 Chestnut Street - Philadelphia, Pa.



What WILL You Do Without MEN ?

Surely you are aware that during this coming season, there will be available for clay plant labor—less men than ever before in our history!

Why?

Because the United States Government is going to raise an army of 2,000,000 men for war service—because it will require from three to five million more men to keep them supplied—and

Clay Products is not listed as a soldier's necessity.

You must have men or—their equivalent—and

The Automatic
Elevating Platform Truck
is—"Man Equivalent."

It **hauls more** than a man, it goes **faster** than a man, it goes from kiln to pile, from pile to car—**oftener** than a man—it goes to work every morning at 6:30—always.

It saves MEN.

Write us and find out the details.

The Automatic Transportation Co.

2933-2965 Main St., Buffalo, N. Y.

Pioneer Manufacturers of Electric Storage Battery Trucks, and the only Truck Manufacturers awarded Gold Medal at San Francisco Exposition



Federal Street, Boston, Mass., has sent out the post card illustrated here. The strong line evidencing confidence is "Please let me have your proposition for a guaranteed saving on this drive."

The Cork Insert Pulley is a wonderful invention, has a long life and does not allow slipping. It well merits the confidence placed in it.

Increase in Capitalization

The Union Chain & Mnfg. Company, Seville, Ohio, has increased its capitalization from $40,000.00 to $60,000.00, the increase being in the form of 7 per cent cumulative preferred stock.

The New York office has been removed to 30 Church Street, remaining in charge of J. R. Shays, Jr. Oliver J. Abell, formerly Western Editor of "The Iron Age" is in charge of the Chicago office located at 565 Washington Blvd.

Union Chain is very considerably used in the various branches of the clay industry, particularly on repress machines. Its low cost, an almost indefinite length of life and the power transmission efficiency features are making it exceedingly popular.

Use Film Mimic for Advertising

A refreshing method of advertising their product is in use by the Watt Mining Car Wheel Company of Barnesville, Ohio. It consists of a roll of paper designed on the order of a strip of film used in our picture shows.

Twenty-four separate views are shown in rapid succession, illustrating side, bottom, front and rear dump cars of every conceivable kind, including detailed views of truck and bearing construction.

A movie roll will be promptly sent if you request it.

Black Spots and Grey

Manganese in all mesh sizes for use in brick plants and potteries is being mined and prepared in quantities by The Import Chemical Company of 276 Water Street, New York City.

Prompt shipment from three mines will be welcome news to the clay people who have had difficulty in getting delivery in the past.

A New Catalog

The Thwing Instrument Company, of 3336 Lancaster Avenue, Philadelphia, Pa., has issued a new catalog dealing with thermo electric pyrometer equipment for clay plant use. Copy will be forwarded on request.

Frank M. Erb, formerly Superintendent of Production of the R. D. Nuttall Company, severed his connection with that company and opened an office in the Second National Bank Building, Pittsburgh, on or about March 5th as a manufacturers' district representative, and will handle castings and forgings.

Rutledge & Taylor Coal Company announce the removal of their general offices to the Fisher Building, Chicago, Ill., effective May first. Their St. Louis office will be located in the Boatmen's Bank Building, and in charge of F. Schifferle.

The address of A. Wm. Hinger, the Portland, Ore., representative of the Baldwin Locomotive Works, has been changed from Spalding Building to 512 Northwestern Bank Building.

Be sure you look carefully thru the Classified Ads on pages 909 and 910.



The EDITOR'S CORNER

More Business Than Usual

HYSTERIA, not the German submarine, is the biggest menace which the United States is facing today.

Not many weeks past, some bright student, examining facts and figures pertaining to the international situation at that time, saw that with the short crops in nearly all farm commodities of last year and the increasing need for exportation of food-stuffs across the water, unless a bumper crop was raised this year a serious crisis would present itself. These facts were communicated to those in authority and of course, also appeared in the daily press.

Bingo! Editors, managing editors, city editors, rewrite men and reporters of the nation's newspapers immediately saw the opportunity to start something interesting and began to grind out miles of "copy" on the need for conserving national food resources and for increasing the production of all kinds of eatables. Numberless slogans have made their appearance as a result of this mad yelling on the part of the daily press, which have for their purpose the inspiration of action toward the planting of vegetable gardens.

Now, the interest that is being created in the planting of gardens is perfectly legitimate and highly desirable. It is good for a man's health to be grubbing around in the ground. It takes him out into the open air and provides some very good physical exercise. However, the sensation mongers have not stopped at such wholesome urging. They have gone a great deal farther and are advocating the digging up of front lawns, the plowing up of golf courses and the wholesale cultivation of vacant lots and parcels of ground without reason, and many other foolish stunts, the intent and purpose being the ultimate increase in the production of food.

But the sad part of it all is that while this shouting is going on, out over the country there are thousands of idle acres of land which are not and will not be cultivated, simply because the market for the crops is unstable. The cultivation of vacant lots and the gardens of the householder in the big cities, were every man to do his part, could not possibly make up for the loss in production occasioned by the above condition. The farmer does not thrive on uncertainty any more than does the banker, manufacturer or merchant. The farmer's market must be made more stable, the price of this produce more certain, if we are to realize maximum production in an economical way.

Hysteria, however, has not only hit the garden but it has invaded the house itself. Our own secretary of agriculture, Mr. Houston, has issued an appeal for extreme economy on the part of the women of the United States, urging a restricted consumption of clothing and various other articles.

While the garden hysteria is doing no particular harm, that of the last mentioned type is exceedingly dangerous. President Wilson was about right when he said, not long ago, that hard times were psychological and that during periods of depression people often had money but were afraid to spend it.

Following this line of reasoning, the screaming and spreading of alarm that is now going on is doing a good deal to usher in a period of depression.

"Business As Usual" is a slogan that has kept England and her colonies from economic depression during the war—kept their people busy—their industries moving—their business prosperous. We here in America are in a much better position financially and economically than was England at the opening of the war. We have a great deal of the free gold of the world in our possession. Money is plentiful. Therefore, why cannot our slogan be "More Business Than Usual"?

The United States government is going to need prosperity as much as it needs arms and ammunition if it is to wage a victorious war. Surely alarmist cries for extreme economy are not going to bring about good times. Down with the alarmist and pessimist, and up with the optimist—the man who is looking on the bright side of the situation, is keeping cool and is practicing sane economy. Let's save savingly and not hysterically.

Why not bring this subject up for discussion at the next meeting of the chamber of commerce, or other local business organization? In the absence of a gathering of such character, why not call a special meeting of the other manufacturers and merchants in your town to discuss this question with a view toward taking some action. Then move en masse on the editor of your local paper and help him to see the situation in its true light.

PATRIOTISM *and*

A Call to the Colors of Trade Aggressiveness Swing in Now at the Front of the

THE MYTH THAT DEFENSE of one's country can only be found in the trenches of the powder firing line is being rapidly punctured by the commonsense of the American people.

The enlistment of every citizen, either for conserving work behind the lines, or for the militant needs of the army and navy, is just now the most significant development of our war program.

"Keep Your Business on a Basis of Peace Efficiency," is as important as the slogan of "Preparedness" for our boys in khaki and sailor-blue.

That is why the nation-wide "Buy a Home Campaign," now under way thru the aggressive efforts of the Associated Real Estate Boards of America, deserves the highest praise and the heartiest co-operation of every allied business.

The successful inauguration of this far reaching plan cannot fail to have a wonderfully steadying, as well as stimulating effect upon local business centers thruout the country.

And that it is succeeding, the first returns just at hand afford most convincing evidence. But these details, by their failure to mention it, chronicle a most extraordinary dearth of interest on the part of at least one great group of material producers.

WHERE IS BRICK IN THIS OPPORTUNITY?

The brick manufacturers seem to be almost wholly asleep or at least inert to this call to patriotic participation in a vital department of national conservation.

We naturally hold no brief for the makers and dealers in the somewhat competitive lines of wood, cement and stone, but we put it straight up to the brick men of the nation—"Why should you let these competitors get all the legitimate publicity and advertising advantage, which must naturally accrue from the widely extended 'drive' of the progressive real estate promoters of the land?"

There may be, and no doubt are, numerous eloquent exceptions to the above, but the general facts in the case so far as reported by our correspondents proves that as a whole the makers and molders of nature's most invincible building material are not by any means making the most of this opportunity so gratuitously afforded them.

It is not yet too late, however, for the brick men to wake up and get tremendously busy on behalf of their interests in this notable movement. Clay product folks cannot expect to rest upon laurels already won. What a magnificent chance to combine effective business with efficient patriotism! To put new vitality into a war-depressed market, and at the same time help strike the patriotic keynote of substantial individual home construction and self-ownership, is a purpose that cannot fail to stir the most sluggish blood.

Wake up! ye manufacturers, dealers and distributors, and read the particulars of this novel campaign and act at once with that wise aggressiveness and acumen that has kept our industry in the fore front thru the past twenty-five years of intense and increasing assaults and competition.

WHAT THE "BUY A HOME CAMPAIGN" LOOKS LIKE

Cleverly engineered thru brilliant headquarters' generalship, the "Buy A Home Campaign," launched by the executive committee of the National Association of Real Estate Boards of America, has, according to the latest reports, captured the attention and focused the interest of more than two hundred cities, including such centers as Indianapolis, Portland, Denver, Buffalo, Atlanta, Ga., Birmingham, El Paso, and many others. One interesting side light in this connection is the single item that in Florida alone sixty towns are being enlisted in the "Buy A Home" program under the direction and *exclusive* auspices of the state lumbermen's organization.

As we go to press, comes the interesting news that Indianapolis, stirred for an entire week by a splendidly managed campaign, had decided to extend its program for another week because of the intense interest aroused. Meanwhile with the capital wrought up to a fine pitch of practical zeal, many adjoining Hoosier cities are following suit, including Ft. Wayne, South Bend, Evansville, Terre Haute and Marion. The particulars of the Indianapolis campaign are not without practical interest to all producers of clay products.

The campaign, heralded by a blare of journalistic trumpets in the shape of a six column news spread, handsomely illustrated and most effectively written, greeted the people of the Indiana metropolis, the morning of April 22, while a four-page composite home publicity section which appeared in the same issue, followed up and clinched the interest aroused by the news write-up.

But this was only a starter. Flashed from street cars and store windows, from bulletin boards and from pay envelopes, announced and emphasized by every public school teacher at the explicit direction of the board of school commissioners, and enlivened by pointed and novel interviews with prominent citizens, both men and women, the message of the campaign was burned indelibly into the hearts of the people until business fluctuations, labor troubles and even war news, were forced into the background at least for the time being.

CONTEST KEYNOTES AND RALLYING CRIES

One of the most successful ideas of the whole campaign was the prize contest announced the first day by the local Real Estate Board offering one hundred dollars in gold divided into twenty-nine prizes for the best two-hundred word essay contributed by boys and girls under eighteen years of age on the subject "Why Buy A Home." They had less than five full days to contribute their competition answers, yet more than one thousand young people flooded the desks of the contest judges with their ardent effusions, many of these being remarkably pointed arguments on behalf of the subject in question. As a sample of the phrases and slogans that helped keep the enthusiasm at the highest possible pitch, may be noted:

"Home ownership quickens citizenship."

PEACE EFFICIENCY

for All Clay Products Manufacturers-- Great Nation-Wide Buy-a-Home "Drive"

"The percentage of home ownership measures civic stability."

"The romance of life is not all in books, it lies chiefly in individuals and their homes."

"Home ownership makes a man a better citizen, brings more contentment to himself and his wife—makes him a responsible member of the community, for he has an estate to protect, and will wager his life, if need be, to protect it."

"Home ownership sharpens resourcefulness and makes for self-reliance."

"A home is not anything that can be rented—**a home is made.**"

"Who will take up a gun in defense of a boarding house?"

"Buy a Home! It is a good message! Something to achieve and attain."

"A little cottage all your own is worth far more than a rented mansion."

There is no question as to the immediate returns from the Indianapolis campaign. It may be noted that 15 out of 125 members of the local real estate board reported 55 deals aggregating two hundred thousand dollars in the first three days of the "drive," with innumerable smaller items of prospective business, developing among the rest In addition to that, hundreds of inquiries were received and every one of the 233,650 inhabitants of the Hoosier Capital received some direct impression on behalf of home owning and building. On May 6, Portland, Ore., reported the commencement of a similar campaign with every prospect of remarkably profitable results.

"Brick and Clay Record" will be very glad to have particulars regarding "Buy A Home" campaigns anywhere, and especially to chronicle effective participation in them of clay products manufacturers.

* * *

Railroads Give Preferred Movement to Coal

In view of the impending coal shortage, an announcement recently made by the executive committee of the Special Committee on National Defense, of The American Railway Association, is of great interest to manufacturers of clay products in the United States. After a deep study of the transportation problems before the country at the present time, the committee has decided that, because of the depletion of the reserve stocks of coal in many sections of the United States, due largely to an unprecedented consumption during the past year, the paramount need is to insure the largest possible movement of coal to every part of the country during the coming warm months.

Similarly, the committee recognizes the necessity, particularly in view of the war with Germany, of keeping the steel mills abundantly supplied with iron ore and for this reason has placed iron ore second to coal in the order issued to the railroads recently regarding preferential shipments.

This action of the executive committee is the first important step taken by the railroads following their pledge of April 11 to co-ordinate their operations in a continental railway system, merging all their individual and competitive activities in an effort to produce a maximum of national transportation efficiency.

* * *

Bureau of Standards Reports on Tests

The director of the Bureau of Standards, Pittsburgh, Pa., in his monthly report to the secretary of commerce, has the following to say relative to the silica brick investigations being carried on:

"The study of silica brick has been continued, paying special attention to the development of a test which will serve to readily determine the quality of this class of brick. Samples are being collected from very widely distributed districts for the purpose of investigating the quality of the brick as furnished. This will supplement an investigation already completed and now being written up, in which the changes which take place in the quartzite, used in making this material, have been followed microscopically. In this investigation 109 specimens were prepared. Three burnings were made, totalling 216 pieces, and a very large number of volume determinations made."

Reporting on the hollow tile wall tests, the director writes: "A series of investigations on the strength of hollow tile as developed in walls of various thickness has been started by the construction of a number of these walls five feet long by twelve feet high. The walls so far constructed are of three thicknesses—six inches, eight inches, and twelve inches. Those already laid up have been set with the tile on end. In the investigation outlined, the same size walls will be constructed with tile placed on their side. Other variables will be constructed. Some of these will be tested by direct compression; others will be tested by applying a load across the middle of the side, the purpose in this latter case being to determine somewhat the ability of these walls to withstand wind pressure. This investigation has been undertaken at the request of a number of manufacturers of this material. Some of the data will also be rendered available to the American Society of Testing Materials, which is now engaged, thru one of its committees, in adopting specifications for hollow building tile."

* * *

More About Excess Profits Tax

One of the most delicate problems that members of the Ways and Means Committee of the House, who are preparing the revenue bill, find themselves facing is the question of an additional tax on excess profits. The point has been raised that to increase this tax may work a hardship upon corporations of small and genuine capitalization, while permitting corporations with watered stock to es-

cape much of the burden of taxation. The claim is made that the overcapitalized corporations reduce, thru their watered stock, their dividends and so do not come under the excess profits tax, while the corporations that are working on an actual capitalization will be the natural prey of the tax collector.

An alternate suggestion to relieve this alleged threatened evil is that a flat tax be imposed upon gross earnings, less operating expenses, and by this means reach some of the great corporations which will otherwise escape carrying their share of the load.

Another consideration urged is that care must be taken not to burden industrial enterprises with such an accumulation of taxation that shareholders and bondholders will find it necessary to dispose of their holdings and invest in the $7,000,000,000 bond issue at three and one-half per cent., which is exempt from taxation.

Barkwill-Farr Company "Does Its Bit"

The Barkwill-Farr Company, of Cleveland, Ohio, has taken a prominent position among Cleveland business houses which are endeavoring to forward the nation-wide movement for agricultural preparedness, and have derived not a little advertising benefit therefrom. One thousand acres of land surrounding several of its plants have been offered to the Cleveland war board for intensive cultivation. And "Minnie," the Brookside zoo elephant, has been persuaded to plow large sections of this acreage.

Pictures, which enjoyed a wide newspaper circulation, show "Minnie," the patriotic elephant, and five young women employes of the Barkwill-Farr Company, who have turned farm hands in the national emergency. The work is under the direction of J. J. Shea and J. M. Beville.

On May 4, employes of the company will plant thirty acres at the Dennison plant, the area to be turned over later to the care of a charitable institution.

The Cleveland Builders' Supply Company, thru W. T. Rossiter, secretary and manager, has placed fifty teams at the disposal of the war garden committee.

Cleveland Building Strike Ends

The largest and most costly labor difficulty experienced in the history of Cleveland ended Wednesday, April 25, when the Building Trades Employers' Association voted to end the lockout which has been in force since March 15. Twenty thousand men returned to work. This action of the association followed a decision of the building material companies to resume deliveries to independent builders Wednesday noon.

Construction work to the amount of twenty million dollars was held up by the strike. The wage loss to workmen has been estimated at $90,000 a day. The no-delivery program growing out of the strike also caused the delay of Cleveland's ten-million-dollar street repair program.

A two-week lockout of union men employed on $1,000,000 worth of building at Elyria, Ohio, has been ended. One thousand men returned to work. The difficulty was an outgrowth of the Cleveland lockout, and was ended on the same day, April 25.

Ohio Face Brick Makers Announce New Prices

With the price of coal again advancing to almost unheard of levels, and manufacturing costs rapidly increasing, face brick manufacturers in Ohio have been compelled to again increase the price on all grades. The most recent advances made average from $1 to $1.50 a thousand. This last general advance, with the advances during the winter months, makes an increase in price of all grades from $3 to $3.50 per thousand. If coal prices advance still farther, as has been predicted, and if labor costs continue to increase, additional advances will be necessary to take care of increased costs of production. Another factor entering into the increased costs of manufacturing is the short car supply, which is retarding shipments. Brick manufacturers are of the opinion that another wage increase may be necessary, especially in the eastern Ohio plants, in order to keep men at work. The high wages paid by steel and iron concerns, munitions factories, and rubber companies is attracting employes from the face brick plants of the "Buckeye State." As in the case of the coal operators, where it was necessary to grant an increase in wages amounting to about twenty per cent., it may be necessary to grant an increase in wages to brick plant employes. The movement, however, has not gained any impetus so far.

Rehabilitation of Western Plant Under Way

One of the first things that O. H. Krueger, new owner and president of the Poudre Valley Press Brick Company, accomplished after acquiring the interests of that company was to change its name to the Fort Collins Press Brick and Manufacturing Company and the name of the town in which it is located from Trilby to Elsie. Many years ago this rural community started as a railroad section house under the name of Trilby, and attained its growth when the Poudre Valley Press Brick Company located its plant there. Mr. Krueger, however, shows a decided preference for the name of "Elsie" and has already made the Colorado and Southern Railroad see its way clear to substitute that appellation in place of the old one in the next time tables which it publishes. A large force of men are at work overhauling the plant, after a period of idleness extending over four years, and, according to Mr. Krueger, brick will be manufactured at the plant in the very near future. While at first the output will consist chiefly of face brick, the company plans to undertake the manufacture of architectural terra cotta and other clay products some time in the future.

Outlook Is Favorable in Connecticut

In the region around New Haven, Conn., the season for brickmaking is opening up, but as yet operations are not entirely under way. The outlook is favorable, however, and the operations are promising fully as good sales as last season, and they were good enough then to keep the plants busier than they ever were before. The North Haven Brick Company is arranging to operate its plant to capacity, provided it can obtain labor. Labor in Connecticut, with the army calling the adventurous on one side and the munitions plants, with their higher wages seeking them on the other, is a problem which manufacturers have not yet solved to their satisfaction. Perhaps it will suffice to say that it looks bad. The Stiles Company, also of New Haven, is planning the largest season in its history. Workmen are employed about the plant, placing it in operating condition. Orders are already coming in, but it is not so difficult to get orders as it is to fill them.

An OLD INDUSTRY *of the* HUDSON VALLEY

Disproving the Imported Brick Tradition, Some Records Are Quoted, Proving Brick Were Made Early in America

By Robert W. Jones

ONE OF THE TRADITIONS of the Hudson Valley is that many of the old brick houses erected before the time of the present generation, were constructed of material brought over from Holland or England as ballast. This interesting bit of fiction has been related so many times and so seldom disproved or questioned that it has come to be generally accepted as fact. Just recently, for instance, an Albanian argued that as his building was erected before his time and (as he said) since brick were not manufactured in Albany before that date, they must have come over from England. This building was erected about 1810.

There has been in the minds of a few people, however, a very decided suspicion that most of the material used in the construction of the early brick houses was produced from local sources and that only a very small amount had ever been shipped from Europe.

EARLY "BRICK" HOUSES REFLECT DUTCH STYLE

The majority of early settlers of the Hudson Valley came from Holland. It was only natural that they should bring with them into the new world fixed ideas as to construction. At first, the style of their houses reflected a marked similarity to the designs of those they had recently left in their home country. They were not constructed after the style or design of the modern brick house and would hardly be classified as such today. Wood was used to a great extent in forming the framework and in the construction of the main portion. Between the woodwork, brick or tile, which were roughly formed and crudely burned, were so placed as to give the appearance of a solid wall of burned clay.

In the days of the early settlement of New Amsterdam, sailing ships were not of very great size. The main line of travel from Holland to New Amsterdam was not direct but by the way of the West Indies and then up along the coast of North America. The vessels, therefore, in all probability brought with them not brick but necessities, such as cloth and hardware. They would hardly bring brick to a country so abundantly supplied with clay and with such immense forests of fuel. Of course, the early patroons did bring some brick for their own official residences and office buildings but this importation did not last for many years.

EVOLUTION OF PRESENT SIZE OF RECTANGLES

Owing to geological conditions in Holland, the natives have been compelled to make use of brick as a substitute for rock in construction. From the very earliest days the size of brick have been regulated by law. Holland in 1645 and 1662, referring to the laws of 1495, specified that brick should be made with a length twice their width and a width twice their thickness. Holland brick were not all of the same size. "Moppen" were ten inches long, Amsterdam measure (Amsterdam inch equals 1.013115 English inch); "Leiden" or "Rhine" were a little over seven inches long, and "Yssel" were six and one-half inches long. Chapter 138, Laws of the Colony of New York, 1703, fixed the standard size as 9 by 4¼ by 2½ inches. Two specimens of yellow brick, on exhibition in the State Museum, Albany, reported to have been taken from one of the forts at Fort Orange, measures 7½ by 3½ by 1¼ inches, following fairly closely the "Leiden" dimensions.



The Old Dunbar House, Constructed Mainly of Small Brick of Local Manufacture, Built Into a Wooden Framework and Faced With Imported Brick. This House Was Built Before or Very Close to 1650

A red hard burned brick from the Catskill region measures 7½ by 3½ by 1¾ inches. The house from which this brick was taken was erected in 1690. Marcus T. Reynolds, of Albany, found in the Van Rensselaer Manor House an arched vault made of brick whose size averaged 6 by 3¼ by 1½ inches. The brick of the later Manor House averaged 9 by 4¼ by 2 inches, making the date of erection probably close to, or after, 1703. Brick taken from a fire place of a British camp on upper Manhattan Island measure 7 by 3½ by 1½ inches. The brick in Fort Crailo, Rensselaer, said to have been erected in 1663, were very irregular, measuring 8½ by 4 by 2 inches; 9 by 4 by 2 inches; 9¼ by 4 by 2 inches and 9½ by 4¼ by 2 inches. The Philip Schuyler House, Albany, erected 1761-1762, was constructed originally of brick whose length varied from 9 to 10 inches, with a width from 4 to 4½ inches and a thickness of 2¼ inches. The average is 9½ by 4¼ by 2¼, which is very close to the size specified by the laws of 1703. In 1820 this house was enlarged, brick averaging 7¾ by 3½ by 2 inches being used.

EARLIEST REFERENCE TO NEW YORK BRICK

It is probable that the first or earliest reference to the manufacture of brick in what is the present state of New York is contained in a letter written by Jones Michaelius, of New Amsterdam, on August 11, 1628, when he says: "They bake brick here but it is very poor." In 1640, yellow brick of domestic manufacture were sold in the Colonie of Rensselaerswyck at a rate which is equivalent to $15 per thousand.

Arendt van Curler, writing to the patroon on June 16, 1643, and speaking of the 4,000 tile and 30,000 hard brick sent over from Holland on the De Houttuyn says: "Of the 30m stone which your honor sent out last year per the Houttuyn I have not received above 10 thousand as I am told by my Skipper Louwerns and others. The skipper of the Houttuyn retained them for ballast. Your honor will be pleased not to send any more stone for we can purchase them cheaper at the north than those cost which your honor sent and they are as large again. The four thousand tile which your honor sent out are not worth the freight; for they crumble all away like sand. I have not had from these more than 10 to 12 hundred good tiles. The rest are good for nothing. The broker who purchased the tile for your honor hath grossly cheated you."

In May, 1653, Johan De Hulter, one of the partners of Rensselaerwyck, embarked from Amsterdam and brought to New Amsterdam, along with other workers, a brickmaker. Among the early Albany records is found under date of November 7, 1657, a notice that Juffrouw Johanna



The Patroon Office Building, the Sole Remnant of Several Small Structures Erected by Van Rensselaer in Albany in 1666, Directly Across from His Residence. Holland-Made Brick Seem to Have Been Used in Its Construction

De Hulter had sold her steen bakkerij (brick kiln) to Adrian Van Ilpendam for the sum of 1,100 guilders. She also sold her pannenbackerij (tile kiln) to Peter Mees for 3,717 guilders. Mention is also made of the Hoogeboom brothers, tile makers in the Van Slechtenhorst's kiln in 1658. In 1662, Pieter Jacobse Borseboom sells his steen bakkerij, prior to moving to Schenectady. In the records of the Reformed Dutch Church of Schenectady appears the following: "1683 aen den ½ duyzend harde steen 18 florine." In 1690 brick were quoted at an equivalent of from $2 to $3 per thousand. In 1704 is found the record of Wouter Quackenbos' bill for 1,300 brick, with carting to the fort, which amounted to £1-2-0.

COLONIAL BRICKMAKER RENTS CLAY LAND

On April 30, 1728, Luykas Hooghkerck appeared before the common council and made application for two acres of land on Gallows Hill, Albany, for a term of fifty years, to be used in the manufacture of brick. Permission was given under an annual payment of twelve shillings. Luykas Hooghkerck was in the brick business for many years before and this yard was never completely abandoned until about 1900. In the papers of the Philip



Fort Crailo, Built of Holland-Made Brick in Rensselaer in 1642 and Enlarged in 1762, Was Constructed as a Residence and Store-House for Vice-Director Montague, of New Amsterdam. It Stands on the East Shore of the Hudson, Almost Directly Opposite Albany.

During the Early Days, It was Arranged for Protection Against the Indians by Placing Port Holes Between the Windows, Two of Which are Shown in This Picture. Later, During the Indian Wars and the Revolution, It Proved to Be An Important Post Between the Lower Hudson, the Mohawk Valley, and Canada.

Schuyler House, Albany, which was erected in 1761-1762, is found the bill of Luykas Hooghkerck, brickmaker, for £206 18s 6d. Under date of April 30, 1728, Abraham Vosburg petitioned for two acres, adjoining Luykas Hooghkerck, for twenty-five years. Under a later date Wilhelm and Nicholas Groesbuck asked for and obtained a small portion of land for six years at an annual rental fee of ten shillings. In 1732, one acre of land was granted to Lambert Radley and Jonathan Broecks for a term of twenty years at the rate of twenty shillings a year. Along Foxen Creek, Albany, brick were being made by Wynant Vanden Bergh in 1736. In 1753, a parsonage was built in Schenectady of brick which were made by Jacobus Van Vorst at the rate of $2.50 a thousand. In 1736 Abraham Harpelse Van Deusen and Hendrick Gerritse Van Ness had a kiln on the north side of Foxen Creek. These fragments of records continue on down until the time when a systematic record of all products related to industrial geology in the state of New York was begun in 1905.

There are no records of these early times in which any mention is made of methods of manufacture except that the open yard was naturally the method of drying and to help cut the cost of production the school boys were allowed to "turn and spat" for the privilege of swimming in the flooded clay pit. There are a few interesting records also of a method of tempering which was dependent upon a drove of cows being driven thru the prepared clay bed until the material was worked into a condition for molding.

TRACING THE INCREASE IN PRODUCTION

While the number of active producers in the Albany district has gradually decreased as the years passed by, the production has been greatly increased. Until 1847 the total output never exceeded 16,000,000 brick a year and in that year, due to a reduced price of $2.50 per thousand, the production was cut to one-half that amount. In the years between 1900 and 1915 the average annual production varied from 50,000,000 to 60,000,000 brick.

The great brick producing regions of the Hudson Valley, depending upon the shipping market, came into existence many years after the inception of the brickmaking industry in the Albany section. Kingston, with an available daily machine capacity of about 3,000,000 brick, began to produce commercially about 1800. In 1810, on the banks of the Minisceongo Creek, Haverstraw, Rockland County, was burned the first kiln of brick in this great brick producing region.

About 1815, James Wood, a native of England who had been making brick at Sing Sing and Verplanck's Point, was attracted to Haverstraw by the large deposits of clay. He began the operation of a brick yard on land leased from John and Peter De Noyelles. This was the first commercially successful yard in the county and it manufactured hand-molded brick. A yard was soon afterwards opened by the Allison family and in a few years several yards were being worked in this section, with varying success. In 1834 David Munn made the first decided success by opening yards at Grassy Point. In 1838 there were six yards in operation at Grassy Point, producing annually about 12,000,000 brick. In 1852 came the invention of the automatic brick machine by R. A. Van Valen, superseding Hall's machine. In 1883 there were in operation, in and around Haverstraw, forty-six yards running one hundred and seventy machines, requiring 2,400 men to operate, and producing in that year 302,640,000 brick.

Among the names of those producers of the early days are some that are still remembered in connection with the early history of the brick manufacturing industry of Haverstraw, such as B. J. Allison, Denton Fowler, John Derbyshire, Uriah Washburn, Snedecker Brothers, Terrance Maguire, and John Morrissey.

New Hollow Tile Plant for the South

The Acme Press Brick Company, of Denton, Tex., has already commenced work on the construction of a large twenty-thousand-dollar hollow tile plant. According to a recent announcement made by A. B. Kelly, manager of the Acme Company, a force of twenty men are now at work on the excavation, which will be pushed as rapidly as possible, in order to have the building completed by the time the machinery arrives. It is expected that in three months the new plant will be in operation. A new power-house has just been completed at this company's present plant, to replace the one destroyed by fire last winter. Altho the output of the plant is now limited to forty thousand brick daily, this will be increased to seventy thousand brick with the development of more favorable conditions.

The Great Falls (Mont.) Brick and Tile Company is reported as being incorporated recently with a capital stock of $200,000. The incorporators are S. S. Hobson, Frank W. Mitchell and Ransom Cooper.

The Philip Schuyler House, Erected During 1761-1762, was an Important Center During the Revolution. The Brick Entering Into Its Construction Were Made in Albany, as Were Also Those Used to Construct the Small Vestibule, Shown in the Picture, Which was Added to the Original Structure in 1820.

This Is Only One of the Many Buildings Still Standing in Albany Which Were Constructed During This Period. Altho Its History Extends Back Almost a Century and a Half, the Brick Are in Excellent Condition and Have Occasioned No Repair Work.



HOLLOW TILE *in the* SOUTH HAS NEW ASSOCIATION

Manufacturers South of Ohio and East of Mississippi Hold Inspiring Get-Together and Form Promising Body

THE SOUTHERN HOLLOW TILE Association, representing the bulk of the production capacity south of the Ohio and east of the Mississippi rivers, was organized at a meeting of a number of southern hollow tile manufacturers held in Birmingham, Ala., on April 18 and 19. It begins its career under the leadership of James T. Howington, general manager of the Coral Ridge Clay Products Company, of Louisville, Ky., with a membership of eight manufacturing concerns and with eight other companies listed as prospects, and represents an annual capacity of about 200,000 tons, manufactured in the following ten states: Kentucky, Virginia, Tennessee, North Carolina, South Carolina, Georgia, Florida, Mississippi, Alabama, and Louisiana.

The prime object of the association, of course, is to encourage a wider and more extensive use of hollow tile for building purposes. A campaign of publicity and educational work will be entered upon in the near future to acquaint prospective builders with the merits of hollow tile. The building codes of the various cities will be looked into and efforts will be made to see that they are fair to hollow tile. Railroad rates will constitute another matter for the attention of the members.

PERMANENT HEADQUARTERS TO BE ESTABLISHED

For the first few months it is not likely that an elaborate program will be entered upon, altho May will see permanent headquarters of the association established at Birmingham, Ala., with a paid secretary in charge, and the establishment of a credit service, traffic bureau, and information bureau. The association will operate under the open price plan, the members exchanging information as to production, distribution and other important matters that will assist in determining market conditions.

Enthusiastic meetings were held on the two days mentioned, Mr. Howington calling the meeting to order. E. R. Sturdevant, of Chicago, secretary of the Hollow Tile Association, the national organization, was chosen temporary chairman, while Mr. Howington was the popular choice for temporary secretary. Present at these meetings were the following, aside from Messrs. Sturdevant and Howington.

W. E. Eddins, Salmen Brick and Lumber Company, Slidell, La.

A. P. McDonald, P. Bannon Pipe Company, Louisville, Ky.

J. M. Jenkins, Jr., Jenkins Brick Company, Montgomery, Ala.

C. W. Dixon, Gamble and Stockton Company, Jacksonville, Ala.

J. S. Bone, Oconee Brick and Tile Company, Milledgeville, Ga.



JAMES T. HOWINGTON
President of the Southern Hollow Tile Association



A. D. DABNEY
Acting Secretary of the Southern Hollow Tile Association

M. A. Ferst, Roper, Strauss, Ferst Tile Company, Birmingham, Ala.

C. T. Thomasson, Bessmer Fire Brick Company, Ensley, Ala.

Robert F. Vaughn, president of the Kentucky Chamber of Commerce, Louisville, Ky.

Bert J. Graham, vice-president and general manager of the Dennison Interlocking Tile Corporation, Cleveland.

Robert L. Gamewell, Birmingham Hollow Tile Company, Birmingham, La.

SPEAKERS INSPIRE AUDIENCE

The first speaker was Mr. Vaughn, of Louisville, who discussed the present day industrial situation in its broader aspects, speaking of the development of co-operative competition and of the changes in practices and laws which have been the results of progress in business matters. He referred in considerable detail to what organization of trade interests has been able to accomplish within the law for the industries they represent and suggested many things the southern tile manufacturers might expect to gain thru their organization.

REORGANIZATION OF NATIONAL BODY OUTLINED

Mr. Sturdevant then told of the re-organization of the national association—how it was brought about and what its plans were, as well as how they were being accomplished. He was followed by Mr. Howington, who discussed organization affairs and spoke of what had been accomplished in other sections of the country thru combination. He suggested such experience would be available for the southern association.

The two-day session was filled with enthusiasm and was highly successful from every point of view. The various manufacturers represented were earnest in their desire to see the association formed and the reforms desired undertaken. The committees on the various steps of the organization were named and reported on the second day of the convention, the constitution, patterned somewhat on the style of that of the national organization, was drafted, and many details incident to the perfection of the organization, were attended to.

RESULTS OF ELECTION

The adoption of a constitution was followed by the election of Mr. Howington as president and J. S. Bone, of the Oconee Brick and Tile Company, Milledgeville, Ga., as vice-president. Selection of the permanent secretary was deferred until the following meeting, to be held sometime in May. A. D. Dabney, of Louisville, is acting secretary. The directors of the association were named as follows. C. W. Dixon, J. M. Jenkins, Jr., M. A. Ferst, W. E. Eddins, and C. T. Thomasson.

Charter members of the association, the membership agreements of which became effective on May 1, are the Salmen Brick and Lumber Company; P. Bannon Pipe Company; The Coral Ridge Clay Products Company; The Jenkins Brick Company; The Gamble and Stockton Company; The Roper, Strauss, Ferst Tile Company; The Oconee Brick and Tile Company, and the Bessemer Fire Brick Company.

President Howington will announce the date for the May meeting of the association shortly. Monthly meetings are to be held in Birmingham at the office of the secretary.

* * *

Terra Cotta Contributor in Aviation Corps

Rolf W. Bauhahn, author of "Satisfaction Made Sure," an article describing the details and operation of the fitting department of a terra cotta plant, and "Making a Terra Cotta Corinthian Capital," appearing in the April 10 and 24 issues of "Brick and Clay Record," respectively, is now with the aviation corps in the United States' service, and is stationed at Mineola, Long Island. Mr. Bauhahn, who was formerly at the Perth Amboy (N. J.) plant of the Atlantic Terra Cotta Company and later an instructor at Princeton University, expects to be sent to France soon.

* * *

Clay Deposits in New Brunswick

The annual report of the Department of Mines of the Dominion of Canada for the calendar year 1915, recently issued from Ottawa, gives the results of tests made with the clay deposits of the "Moncton map" region, a rectangular area extending 12.3 miles east and west, and 18.7 miles north and south, and including portions of Albert and Westmoreland Counties, New Brunswick. In this area are the city of Moncton and its suburbs, a producing gas and oil field; the gypsum deposits of the Hillsborough district, and the oil shale lands of the Albert Mines and Baltimore. On account of its economic importance this region was given special attention, for it was felt that if extensive development took place, the natural resources could more readily be employed to assist an ordinary growth, once their value had been scientifically established.

RAW MATERIALS WELL DISTRIBUTED

From the report it is evident that the raw materials for the manufacture of structural clay products are abundantly distributed over the principal part of the area. The tests made show that most of the shale deposits are suitable for the manufacture of common building brick, face brick, hollow blocks, roofing tile, and field drainage tile. The superficial clay deposits, consisting mainly of reddish-brown bowler clay, can also be used for making common brick. One small deposit of this clay at Lewisville, a suburb of Moncton, is already being worked for that purpose. This is the only brick-making plant in operation in the vicinity.

The presence of natural gas and its availability for industrial purposes, as is the case here, should materially stimulate activity in the clayworking industry, for, in the words of the report, "natural gas is regarded as one of the best fuels for the burning of clay wares. It produces clean burned wares, is easy to apply, and perfect control of temperature may be obtained by its use, so that a plant located in this region near the gas supply would enjoy peculiar advantages." As to the possibility of developing the deposits of shale, the report states:

"At present there is not much demand for structural clay products in this region. Wooden construction has hitherto been used almost exclusively thruout towns and rural districts for dwellings and stores. There is need for a more permanent class of building, and also for those which provide greater resistance to widespread destruction by fires. Such requirements are most easily and cheaply provided by the numerous varities of modern structural clay wares.

USE IN IMPROVING AGRICULTURAL LANDS

"No agricultural tile is made in New Brunswick. Therefore the inference is either that the farming community has not yet realized the advantages to be gained by underdrainage, or that there are no lands in the province requiring underdrainage. As there are very few areas of agricultural lands in eastern Canada which would not

be benefited by underdrainage, it is presumed that there may be sufficient interest aroused in this matter of increased production in New Brunswick to result later on in a demand for drain tile.

"Nearly all the shales described are suitable for the manufacture of farm tile. These could profitably be made in any brick plant on the same machinery and equipment, so that tile and brick could be produced alternately, according to the demand there was for either class of ware. It would cost a little more for grinding shale in order to make drain tile; therefore it might not seem feasible to compete with small plants using surface clays which require little or no preparation before molding. A superior tile, however, can be made from the shales, which would stand transportation better without so much breakage as those made from surface clays.

ROOFING AND FLOOR TILE AMONG POSSIBLE PRODUCTS

"Roofing tile and floor tile are also among the possible products from these deposits. Ware of this kind may be shipped for long distances, and is profitable if the manufacture is skillfully done and losses are avoided.

"Altho these shales burn red under normal conditions, they are capable of being altered by the fuel or by shutting off the air supply entering the kiln, so that the resulting brick are given various dark shades of color, such as bronze or purple. By this means special brick for mantels or face brick for buildings can be produced with a small additional expense, but bring a far higher price than the ordinary brick."

Original "Copy" In Georgia Ad.

Again the Georgia-Carolina Brick Company, by taking a step in advance of the crowd, makes itself worthy of the use of some "printer's ink." In the April 24 issue of "Brick and Clay Record," mention was made of the fact that this company had just made the first export shipment of brick ever sent from Georgia. In this item we have the pleasure of stating that the Georgia-Carolina Brick Company, 418 Jackson Street, Augusta, Ga., is spending money in placing brick before the building public of Augusta by the use of some "printer's ink." In the April 24 issue of the Augusta "Chronicle," the following novel and snappy "copy," prominently displayed and filling a comfortable space, appeared over the name of the Georgia-Carolina Company:

"Are You Going to Build a Home or Merely a House?

"In building a home, a man strives for four things—comfort, durability, economy, beauty. Americans have lived successively in Caves, Wigwams, Log Houses, Shanties and Frame Houses. Each of these houses was at one time considered the highest type of residence, and each protected the owner from the weather; even a wigwam will keep the rain out, but people are now coming to realize that these houses do not fill the requirements and that comfort, durability, economy, and beauty can best be secured in HOMES OF BRICK AND TILE.

"If you merely wish to build a house, anything will do, but a HOME can only be built of Brick or Tile.

"Build With Brick."

CARPENTERS HALT PITTSBURG BUILDING

LABOR CONDITIONS in the Pittsburgh district are fairly tangled up by a strike called by various trade union organizations. About 3,500 carpenters are now idle and nearly every important building project is held up pending an adjustment of wage rates. The principal cause of the dispute is the demand made by carpenters for an increase of $1 a day, which will place their scale at $6, with double time for overwork. Members of the Master Builders' Association endeavored to meet the carpenters half way by offering a wage rate of $5.50 a day but the men absolutely refused to listen to the proposal.

All the contractors agree that the demand for $6 is entirely too high but they are willing to do everything possible to help the men meet present day conditions and the high cost of living and have agreed to pay them $5.50. This offer has not been satisfactory to the officials of the union, altho rumors are current that the men themselves seem willing to accept it. Should the men force the acceptance of their demands, with present prices of building materials soaring sky high, contractors would lose heavily on the finishing up of whatever work they have on hand, while their chances for securing prospective work would be exceptionally poor because prohibitive estimates would be necessary.

At the time of this writing there are no signs of an adjustment of the strike. No violence of any kind has been reported. Owners of buildings which have been under way for some time have, in some cases, relieved the contractors of their work and are paying the carpenters the wages demanded so that the work may be finished as soon as possible.

In addition to the carpenters' demand, other organizations also made new wage requests. The plumbers' helpers asked for an advance from $3 to $3.50 a day. It is believed that this additional amount will be granted for the reason that the work of these men is more or less of a skilled nature. The cutting of pipe and the bracing of sewers cannot very well be done by ordinary labor.

OTHER ORGANIZATIONS PLANNING SIMILAR ACTION

Tile setters are said to be somewhat disgruntled at the wages they are receiving. About a year ago the men entered into a five-year agreement on a sliding basis to begin with $5 a day with an advance each six months of 20 cents daily. They now believe that the rate is far below that paid other trades and wish to break the agreement and demand $6 a day. It is thought that if the carpenters win their point the tile setters will force their demand.

Lumber dealers have again sent out sheets showing a general advance of $2 per thousand for most grades of lumber. Contractors are at a loss as to how to figure work. Prices seem to advance with each day's rising of the sun. It is simply impossible to estimate any work and have the figures hold good for forty-eight hours. Cement, plaster, and other commodities are quoted at a certain figure one day and the quotations withdrawn the next. The advance in lumber is the fourth one noted since December. The brick market is not far behind other lines. Common brick in some places is selling at $12.50 at the plant, smooth red face brick is raising from $18 to $20, while rough-textured face brick is quoted at from $25 to $28. Even wall ties, supposed to be the cheapest material to enter into a brick wall, have been advanced from 90 cents a box to $1.80 and $1.90.

ADVANTAGES *of* CLAY OVER CEMENT TILE

A Fair Comparison of Both Types of Drainage Material Showing That Burned Clay is Unquestionably the Better

By E. H. Haeger

of the Haeger Brick and Tile Company, Dundee, Ill.

(*Read Before the Wisconsin State Drainage Association at Its Annual Convention, March 27 to 29, 1917.*)

¶ *There has been too much of the spirit of "knocking" in the discussion of cement drain tile by the manufacturers and dealers of the burned clay material. "Knocking," as will be shown in the report of the Sales Ethics Contest for the face brick salesmen in next issue, usually proves to be a boomerang.*

¶ *What clay drain tile manufacturers have needed for a long time has been an intelligent discussion of the relative merits of both types of tile, which would show actual facts and give authoritative figures to prove the various points made.*

¶ *The following paper fills this need. It is the best discussion of the subject which the Editor has ever had the pleasure of reading. We commend it to you for your careful consideration.*

ASSIGNING this seemingly dry subject to a tile man may appear somewhat peculiar, for tile men usually prefer wet fields. You can see how easily one drifts into the vernacular of his particular business, especially when he is so saturated with it that his ideas must have an outlet.

I am not like the Irishman in the story, who, being invited by three men to join a friendly conversation, answered, "No thanks, I haven't me club with me." Let me explain that I am very glad to join in this friendly discussion, with the added assurance that I carry no bias or prejudice against Portland cement. It is one of the indispensable building materials which have played an important part in the advancement of the welfare and comfort of all peoples. Used in the right place, cement serves admirably.

IMPORTANT QUESTIONS REGARDING CEMENT TILE

Put yourself for a few moments in the place of a farmer trying to decide whether to use burned clay or cement tile. Burned clay tile have been in use for many years, while cement tile in most localities are new and untried. Consequently, you begin to question how the cement tile are made; by wet or dry process, machine made or poured, water-cured or steam-cured. How can you tell if the tile are aged enough to use, and when is a cement tile properly aged? Will cement tile in the ditch make proper joints? Is there danger that the tile will cement together at the ends? Does freezing affect cement tile more seriously than clay tile? Will cement tile bear as heavy pressure as burned clay tile after being laid? Will cement tile resist the action of running water and its possible constituents?

Let us take up these questions and apply them to both cement and burned clay tile, bearing in mind that a fair comparison can be had only by considering representative samples of each kind.

In the process of making cement tile there are several matters of prime importance. Was the gravel or aggregate clean, or was a loamy gravel used? Did the various batches of concrete run uniform as to the proportion of cement used, or did the lack of accurate measuring devices cause variations in the uniformity of the mixtures? Some of the larger cement tile factories are using measuring devices, but there is a large number of smaller plants where the mixing is done by hand. Altho the instructions of the Portland Cement Association give hand-mixing the preference, yet it is a method that is unquestionably subject to mistakes thru carelessness or some other distraction. In cases where the tile are made right on the farm, the chances for poor mixing are much greater, as is also the temptation to use unclean gravel just because it is handy. The Portland Cement Association has laid down twenty-five rules for cement tile making —rules which must for the greater part depend upon the judgment of a workman to be observed. And, mind you, this workman has but few mechanical devices to check his work.

SPEED COMPELS SACRIFICE OF QUALITY

What appears to be one of the most serious defects in making small cement tile is the fact that speed in making necessitates running the concrete rather dry. Altho it is common knowledge that the best cement work is obtained by running the mixture wet, if a well-wetted mixture is used in the manufacture of cement tile, the tile will not stand up after the mold is removed. To emphasize and prove this point, I will quote from page fifteen of Bulletin No. 31, published by Iowa State College, in reporting on a failure of cement tile: "It was noticeable all along that the tile which had been made the wettest were the strongest."

The setting of concrete is a chemical action of crystallization caused by the uniting of lime and water, and unless enough water is added, uncombined lime will remain and the tile will be correspondingly weaker. Lack of water will also prevent uniformity in cement tile. Tests of cement tile have developed the fact that the addition of water has strengthened the tile even when dry. We shall see later how too much water affects the same tile.

The curing of cement tile, whether by the steam or open air process, invites the chance for lack of sufficient moisture. The steam may dry too quickly, or the open air cure may not be assisted with necessary sprinkling of water. Here again are chances of failure to make good tile, as there is no check on the careless or forgetful workman.

WHEN ARE CEMENT TILE SUFFICIENTLY AGED?

How is one to know whether a cement tile is sufficiently aged to be safely used? This question is not readily answered by the ordinary man, since tests have shown that the strength of cement tile will vary from time to time. Certain samples tested at different periods showed variations in strength even after eighteen months from the time they left the factory. This shows that a chemical action may be taking place long after the tile are supposedly ready for use. Here is another chance which the purchaser must assume, for he is in no position to make definite tests.

Compare for a moment this fallible method of cement tile-making with the systematic manufacture of burned clay tile. Once the clay reaches the pug-mill it can be handled with a precision that completely bars any chance of human error. Mechanical apparatus protects the processes of drying and burning, and recording pyrometers and heat measuring devices make it unnecessary to rely upon human skill in these important stages. When the various parts of a kiln show, uniformly, the required heat, one may be positive that the tile are evenly burned.

Now, I am not going to say that all burned clay tile are perfect, but I simply wish to establish the point that the manufacture of burned clay tile can be, and is, more reliably controlled mechanically than the making of cement tile. When burned clay tile are taken from the kiln, one may be sure that they are ready for use. Their color and their ring are always patent evidences of their quality, and are tests that the average purchaser may apply himself.

Cement tile makers claim to make a more perfectly shaped tile with smooth ends. Is there not danger in some soils that the smaller sizes of tile will fit too closely at the joints and reduce the flow of water into the tile? Then again, in other soils where the bottom of the ditch is gravel, the cement tile are too straight to form satisfactory joints, which in the case of burned clay tile can be obtained by twisting the tile into position. The following excerpt, taken from a letter recently received from a tiler, explains this condition very well:

"As to cement tile from the standpoint of a tiler, it is the same as from that of a farmer. The faults, as I see them, are that the tile are perfectly straight and of exactly the same length all around, making it hard to get a tight joint on top at all times. The main fault is that owing to poor mixing, or poor and dirty sand, every one hundred or so of tile include one poor tile."

About two years ago a tiler told me of a peculiar circumstance encountered while taking up some cement tile. He found in many places that five or six lengths of tile were cemented end to end so firmly that they formed single pipes. This raises the question of whether this may not occur frequently, and with the resultant loss of drainage. It also proves the foregoing statement that one cannot be certain when cement tile are chemically complete.

EFFECT OF FREEZING PROPORTIONAL TO POROSITY

We come now to the question of which kind of tile is more seriously affected by freezing. This action is perhaps the most severe which tile are called upon to stand, for both before and after being laid, they may be subjected to frost, which, in many cases, will set up a spalling action. The extent of this action will depend very largely upon the porosity of the tile, because that tile which absorbs the larger amount of water will be subjected to the greater expansion.

The Engineering Department of the Iowa State College has for several years been conducting experiments to determine accurate tests which may be adopted in the Standard Specifications for Drain Tile. This work has recently been completed at Ames, Iowa, and the American Society for Testing Materials has approved the report. By addressing the above society at Philadelphia copies of the specifications can be obtained.

Among the experiments conducted at Ames were freezing and absorption tests. The tabulated report shows cement tile to be from two to three times as porous as hard-burned clay tile. The porosity of cement tile and that of the softest burned clay tile was found to be the same. The engineers explained this by the fact that they had purposely selected the softest burned clay tile they could find and had picked tile from two kilns which were in the course of firing when the supply of fuel oil gave out. A fair average comparison of Ames tests shows conclusively that the porosity of cement tile is ten per cent. while that of clay tile is five per cent. It is perfectly plain, therefore, that the cement tile, when frozen, will be subject to greater pressure.

Natural freezing tests were conducted upon both cement and clay tile, with the result that after forty-one tests had been made, the clay tile showed much greater frost resistance than did the cement tile. Clay tile were also treated with a solution of sodium sulphate as a substitute for freezing. Quoting from page 652 of the 1916 volume of the American Ceramic Society, "Up to seventy-five treatments no clay tile with less than seven per cent. absorption has been noticeably affected."

From the foregoing tests for porosity and freezing one may logically draw the conclusion that good burned clay tile resist frost more certainly than do cement tile because of the former's lower porosity.

CRUSHING TESTS SHOW BURNED CLAY TILE SUPERIOR

Turning now to the matter of crushing strength we find ample data. Hundreds of strength tests were made at Ames upon both cement and clay tile. Taking five of the highest tests on similar sizes we find that the clay tile of twenty-four inches in diameter showed eight and one-half per cent. more strength than twenty-four-inch cement tile. The sixteen-inch burned clay tile showed thirty-two per cent. more strength than the sixteen-inch cement tile and the eight-inch clay tile showed forty-five per cent. greater strength than eight-inch cement tile.

Thinking that an average of the tests on each size and kind would be interesting I have made up the following table:

Clay Tile			Cement Tile		
Size	No. Tests	Pressure	Size	No. Tests	Pressure
24-inch	92	4,516 lbs.	24-inch	100	4,807 lbs.
16-inch	89	4,737 lbs.	16-inch	100	3,610 lbs.
8-inch	98	3,310 lbs.	8-inch	99	2,000 lbs.

The twenty-four-inch burned clay tile tested showed a lower average strength than the cement tile due to the fact that soft-burned clay tile were included, which, under proper inspection by an engineer, would be excluded. In fact, a comparison of the tests of sixteen-inch and twenty-four-inch burned clay tile shows that, contrary to expectation and usual practice, the twenty-four-inch tile withstood less pressure. This would indicate that some of the twenty-four-inch burned clay tile were not up to standard; and I believe that the

adoption of standard specifications will bar the use of non-vitrifying surface clays for making the bigger sizes of tile.

If we carried the comparison of the tests on the twenty-four-inch tile further we would find that the loss of strength due to wetting would make the burned clay tile show 3,387 pounds as against 3,028 pounds for the cement tile, leaving a margin of ten per cent. in favor of the clay tile.

The sixteen-inch burned clay tile, in average test, proved to be thirty-one per cent. stronger than the sixteen-inch cement tile and the eight-inch clay tile proved to be sixty-five per cent. stronger than the eight-inch cement tile. Computing the loss of strength after wetting, the eight-inch burned clay tile would show ninety per cent. more strength than eight-inch cement tile.

MOISTURE SAPS STRENGTH OF CEMENT TILE

The loss of strength in cement tile by wetting is really a determining factor. While some cement tile when dry may show about the same crushing strength as burned clay tile, tests have proved conclusively that wet cement tile have a much lower crushing strength than have wet burned clay tile. In other words, the wetting of cement tile causes a greater loss of strength than does the wetting of burned clay tile. Cement tile have been found to become wet all around after laying in an inch or two of water. Consequently, there is a reduction in the strength of cement tile at the time they are laid in the ditch. As long as the tile remain wet thruout there can be no increase in strength. Burned clay tile, on the other hand, owing to lower absorption, maintain a more uniform strength whether wet or dry.

The effect of moisture on cement tile was called to the attention of engineers who were investigating tile which had failed in the ditch. This fact prompted them to make a number of extensive tests, the results of which are shown on page 159 of Ames Bulletin No. 31, as follows:

Tests of the Effect of Moisture on the Strength of Cement and Burned Clay Tile.

Bearing strength of 6-in. cement tile, dry	1360 lbs. per lin. ft.
Bearing strength of 6-in. cement tile, wet 30 days	930 lbs. per lin. ft.
Bearing strength of 12-in. cement tile, dry	940 lbs. per lin. ft.
Bearing strength of 12-in. cement tile, wet 4 days	1090 lbs. per lin. ft.
Bearing strength of 12-in. cement tile, wet 30 days	680 lbs. per lin. ft.
Bearing strength of 6-in. clay tile, dry	2160 lbs. per lin. ft.
Bearing strength of 6-in. clay tile, wet 30 da.	1610 lbs. per lin. ft.
Bearing strength of 12-in. clay tile, dry	2810 lbs. per lin. ft.
Bearing strength of 12-in. clay tile, wet 21 da.	2730 lbs. per lin. ft.
Bearing strength of 16-in. clay tile, dry	1700 lbs. per lin. ft.
Bearing strength of 16-in. clay tile, wet 5 hrs.	1700 lbs. per lin. ft.

In this connection I wish to read paragraphs from an engineer's letter published in the same bulletin on page 15, for they substantiate the fact that cement tile are materially affected in strength by moisture:

"Some tile were tested while lying by the ditch on dry ground, by placing a plank across them and having a number of men stand on it. They held up more weight in that manner than was over the broken ones in the ditch. This made it look as tho they were much weaker when wet, and it was also apparent that the tile which broke down absorbed the most water; or it might be stated the other way, that the tile which absorbed the most water were the ones which broke down."

The following excerpt is taken from "Cement and Engineering News":

"To learn whether or not this is the explanation, experiments were begun in the testing laboratory of the College of Applied Science, State University of Iowa, about a year ago. It was soon proved that a 1-3 Portland cement mortar, cured in air under conditions similar to those commonly obtained in the manufacture of cement drain tile, was weakened from forty to fifty per cent. by being soaked in water. It was further proved that this weakening resulted at once, that is, the full weakening effect came about just as soon as the specimens were saturated with water.

"The mere fact, however, that a dry mortar may be weakened fifty per cent. by the introduction of pure water seems of sufficient importance to warrant its publication at this time."

ALKALINE AND ACID SOILS DESTROY CEMENT TILE

We come now to what is considered as the most damaging indictment against cement tile, namely, their inability to resist the action of alkaline soils and of water. This statement has long been the subject of denials from cement companies, but up to the present time they have not disproved it. The one result of the discussion has been to set cement chemists on the search for a preventative or coating which will stop the action of water on cement tile.

While the action of alkaline soils on cement tile is not so pertinent to us in this part of the country, it is interesting to note the contents of Bulletin No. 69, issued by the Montana Agricultural Experiment Station, which shows that investigations covering three years and embracing some 5,000 tests proved beyond doubt that alkaline soils do destroy cement tile. Whether the action is chemical or physical is a mooted subject, but the fact of destruction remains unchanged.

Altho the occurrence of alkaline soils is more usual in the West, we also have soils which show a strong acidity. Take our sour swamp lands and determine how much lime is required to neutralize the acid. Some land requires thirty to forty tons of lime an acre to neutralize the acidity to a depth of eight inches. What chance has cement, whose main constituent is lime, to resist the action of acid when laid three and one-half to four feet deep in such soils.

Perhaps a glance into the chemistry of the action of acid on lime will be interesting. We have been told that carbon dioxide is very common in occurrence and is formed largely from the decomposition of vegetable and animal matter and that it is a gas which combines readily with equal volumes of water. This solution has an acid reaction and readily affects the calcium hydroxide as shown by the formula

$$Ca(OH)_2+CO_2=CaCO_3+H_2O.$$

In Portland cement, the hardened mass is permeated with crystals of calcium hydroxide. The addition of carbon dioxide precipitates, or throws down, calcium carbonate with the attendant loss of time. Once start to break the chemical affinity and it is only a question of time until a cement tile will be washed away. Chemical analysis of cement tile can gauge very closely the rapidity with which the calcium carbonate would be precipitated.

The action of carbon dioxide upon calcium hydroxide is verified by text books and chemists, and is as firmly established as other chemical and natural laws which are unchanging. Letters from professors of chemistry at Ames, Iowa, and Mt. Vernon, Iowa, and reports from the University of Illinois, all tell of chemical tests with the same result—disintegration. Cement tile taken up have been found pitted and eaten out. In some cases the water has cut entirely thru the lower side.

TILER TELLS OF CEMENT TILE EXPERIENCE

The following letters received from a Wisconsin tiler, a chemist and a ceramic engineer, throw additional light on the action of water on cement tile. That received from the tiler reads as follows:

"In answer to your letter at hand, my experience with cement tile, altho limited, has been that after I put the tile in the water, if I am compelled to step on them while making my joint and moving around, I find they split thru the center. I have found that where cement tile come in contact with water running in a steady stream, it seems to take the cement out of them. I have taken up cement culverts

one and one-half inches thick which have been all rotten. I know of a job of cement tiling done at Palmyra, Wis., where all the tile had to be taken up because, after the first winter, they all went to pieces."

The letters received from the chemist and the ceramic engineer are printed below:

"Our experiments with cement drain tile quite clearly showed that cement gradually disintegrates under the continued action of water and finally crumbles. The friends of cement asserted that we were working with poor specimens of that product, but as nearly as I could judge, the specimens were quite typical."

"Incident to some other work, we have found that water contains a considerable amount of soluble salt which has a tendency to cause disintegration of cement pipe."

The following excerpt, taken from "Engineering and Contracting," May 21, 1913, is also of interest at this point since it gives some unusual data about the struggle to make cement immune from the action of water that has extended thru centuries:

"The decomposition of concrete mortars by rain water and other causes was fully recognized in Europe and England many hundreds of years ago, and various additions were made to the concrete, all designed to counteract this destruction; bullock's blood, rye-dough, barley water, beer, eggs, buttermilk, and earth being added with various results. The accounts of the repairs to the steeple of Newark Church in 1571 has this entry: '6 strike of malt to make mortar to blend with the lyme, and temper the same, and 350 eggs to mix with it.' On the continent, in 1840, Mr. Fred Kuhlmann exploited silica of soda and cement, and silicate of potash."

BURNED CLAY TILE UNAFFECTED BY ACIDS

As for the action of acid upon burned clay tile, tests and examinations of used tile have proved conclusively that there is no deteriorating action. Step into a chemical laboratory or drug store and see how the strongest acids are handled in clay casseroles with no ill results to the containers. If acids affected clay tile at all, the effects would be noticeable upon tile which have been taken up. Clay tile in use for over thirty years have been found in perfect condition, and many of the older tile companies have letters from customers reporting such experiences.

Aside from the actual merits of the two kinds of tile under discussion, there is the important matter of the reliability and responsibility of tile manufacturers. While this is of importance in the matter of private drainage work, it is frequently vital in the case of county and township drains.

The equipping of a cement tile plant involves a relatively small amount of money, whereas the construction of a burned clay drain tile factory requires an investment from $25,000 to $125,000, according to its capacity. Many of the large tilemakers have investments ranging up to one million dollars. Drainage contracts frequently amount to from five to ten times the capital invested in cement tile plants which submit bids. What recourse would drainage commissioners have in case of tile failure which involved a larger amount of money than the value of the factory which furnished the tile. While the dollar mark fortunately is no criterion, yet the size and financial responsibility of a manufacturer gives assurance of the ability to fulfill contracts and redeem them if necessary.

CONCISE SUMMARY OF POINTS COVERED

To sum up briefly, cement tile offer you "ifs" and "chances." If the various rules of making are followed, if the gravel is right and clean, if the various batches of mixing are uniform in proportion and water, if the tile are properly cured, if the ditch pressure is not too heavy, if there are no soluble salts or carbon dioxide in the soil water, then cement tile will be all right.

On the other hand, burned clay tile offer you assurances as to care and exactness of manufacture, greater resistance to freezing, greater strength, more uniformity, and a record of years of active service which removes them from the list of experiments. Numerous tests both physical and chemical have proved beyond a doubt that the advantages all point indisputably to burned clay tile—the logical drain tile.

Secretary Blair on Limiting Loads to Roads

An important phase of the heavy truck question was brought to the front in Cleveland recently, when commissioners of Cuyahoga County appointed a county highway traffic officer to arrest all drivers of motor trucks or other vehicles found on county roads with loads exceeding five tons. As the average truck weighs about five tons, this action limits the total load to ten tons.

Commenting on this condition Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, Engineers' Building, said:

"Transportation limitation is a big question now, on account of the railroad situation. The country's production is being annually increased without the proportionate amelioration of transportation conditions. Real action is an important need.

"At present we have no single road in the United States, but merely patches and stretches. We are not awake to our needs. Our roads carry heavy loads, but we must have the roads up to the required strength. A brick road will stand the five or ten ton load, if designed to meet these weights. The trouble is that we have stretches of road all over the country—some capable of holding the light load and others built for the heavy capactiy. The aim of our association is to have uniform roads. All roads should be built to stand the heaviest loads likely to pass over them. A system of uniform roads is what we need."

The question is of particular importance in Cleveland where rural and interurban trucking has reached the proportion of an industry, due to the industrial congestion on steam and electric lines. A large part of the daily milk supply is brought into the city on motor trucks, and large shipments of brick and similar material have been trucked to Akron and other centers within a radius of fifty miles, due to the inability to get railroad service.

Regarding the construction of roads for military purposes, Mr. Blair said: "The necessity for dependable transportation believed necessary for the eventualities of the war is causing careful consideration by the military authorities. It is likely to lead to the construction of some real brick roads of sufficient length that they will bear a like dependability for the movement of trucks and vehicles as that which a railroad track bears to train movements. If such roads are constructed a certainty of loads will be assured, as well as a certainty of stable movement and the arrival on time. Vitrified brick roads mean all of this to the government."

If You Enjoy

the Superintendent's Department, why not let your appreciation take a practical form and send us a description and some sketches of that idea or those ideas of yours that are saving you money? We will pay you some

Real Money for Them.

COST ACCOUNTING SUGGESTIONS

A Paper Read Before the Annual Meeting of the Wisconsin Clay Manufacturers' Association, February 1 and 2

By Oscar Wilson

THE MATTER of a proper, practical and simple system of cost accounting is most essential in any manufacturing business, and is just as important to the manufacturer of clay products as that of any other line.

With the idea of having something practical and simple, meaning easily installed and readily understood, I would suggest something along the following lines:

In the first place the time roll or pay roll should be kept so the time of each man on each different class of work can be figured up separately.

The cost of manufacturing brick should be divided into four general headings, namely:

1. General, or Overhead.
2. Labor and Supplies.
3. Brick Wheelers and Setters.
4. Burners and Fuel.

(1.) The General or Overhead, would include the cost of
Advertising.
Insurance.
Taxes.
Office Expense.
Travelling Expense.
Salaries, if any outside of Superintendent.
Depreciation.

(2.) Labor and Supplies, would include cost of
Stripping, clay bank.
Clay, representing cost of labor getting the clay from bank to machine.
Machine Crew, which would include all labor in connection with the operation of the machine and taking the green brick to the racks or dryer as the case may be, whether it is done by cars, trucks, or cables.
Machine Repairs.
Rack and Pallet Repairs, or Dryer Repairs, as the case may be.
Kiln Repairs.
Building Repairs.
Engineer, Boiler Fuel. These accounts not necessary if electric power is used.
Sand.
Yard Expense.
Yard Supplies.
Yard Salary, such as Superintendent's Salary, etc.

(3.) Brick Wheelers and Setters, which would include cost of: (1) Brick Wheelers, which would represent cost of labor wheeling green brick from racks to kilns or transferring cars of green brick from dryer to kilns; (2) Setters, which would represent cost of setting.

(4.) Burners and Fuel, which would include cost of: (1) Burners, which would represent cost of labor burning; (2) Kiln Fuel, which would represent the cost of fuel.

SYSTEM OPENS AVENUE TO KNOWLEDGE OF COSTS

With the cost of your labor and supplies divided up into these several headings, and your time roll so kept as to know exactly how much time of each man is put in on each class of work, one can arrive at an intelligent figure at any time when the pay roll is figured up what the total labor or supplies cost for any given period, and then divide this amount by the number of brick manufactured for that particular period will give you the cost per thousand.

Of course, the items under the heading of Brick Wheelers and Setters, would have to be divided by the number of brick wheeled and set, in order to arrive at the actual cost per thousand, instead of the number of brick manufactured, as there would be a certain number of green brick on the drying racks, or in the dryer, that had not been wheeled or set until the finishing up for the season.

This is also true as regards the Burners and Kiln Fuel division. The total cost of labor for burning and the cost of kiln fuel for a given period would have to be divided by the number of brick burned during that particular period instead of the number of brick that were manufactured or came out of the machine.

By keeping your time roll in the proper manner and the distribution of the cost of your supplies and fuel, you can easily determine the cost of your finished product per thousand.

Now the items of Sorting, Loading, etc., have to be taken into consideration. It is a good plan to have an account called Brick Sorting, and the cost of all labor sorting brick charged to this account, and another account called Brick Loading. The cost of each of these accounts divided by the number of brick sorted or loaded, as the case may be, will give you the exact cost of each operation per thousand. These amounts should be deducted from the average price received, which will give you the average net price per thousand received for your brick at the kilns. If there are any other expenses put on the brick after being burned, such as straw used for packing in the cars, or anything of that kind, it should be treated in the same manner as above and deducted from the average price received. When you get these figures together you can readily determine that the difference between the average net price received at the kilns and the average cost per thousand, is your net profit per thousand.

ADDITIONAL HEADINGS MAY BE INSTALLED

Now these suggestions as to the several accounts can be further classified as to details to suit each individual case and can be carried out as far or in as much detail as you might desire. Other headings can be used or any changes made in this respect to suit any individual case or condition. With these headings alone, however, one can easily determine the cost of his ware at each step

in the process of manufacture, and in case some particular part of the cost seems excessive it can be located and the necessary remedy applied.

Understand please, if you have something special you want to get the cost on quickly, you can arrive at it without waiting until the pay roll is figured up complete, by simply taking from your pay roll such memorandums that are necessary, but the suggestions made here are made with the idea of carrying the amounts under each heading in the ledger until you close your books, let it be once a month, every three months or at the close of the year as the case may be.

Ceramics Company Explains Change in Name

In changing its name from the German-American Stone Ware Works to the General Ceramics Company, the new concern, which has headquarters in Perth Amboy, N. J., makes the following announcement:

"The German-American Stone Ware Works was originally organized for the sole purpose of manufacturing chemical stoneware in accordance with the best German and American practice. During the past few years we have, by the purchase and development of existing plants and the erection of new factories, increased our lines of manufacture to include a large variety of ceramic products and intend to add to this such other ceramic productions as circumstances may dictate. As the name under which we have been doing business is no longer representative of our activities, we have decided to change the name of this corporation to the General Ceramics Company. The advantages we have always enjoyed of basing our methods of manufacture on the best European as well as American practice will be maintained and we can therefore assure our customers that the quality of our products will be as heretofore unexcelled and a credit to American industry.

"The officers of the new company are Nicolaus B. Jungeblut, president; Lewis Albrecht, vice-president and treasurer, and Percy C. Kingsbury, secretary."

U. S. "ALL DRESSED UP *and* NO PLACE *to* GO"

THE MERRY MONTH OF MAY is not starting in as auspiciously for the real estate and building market of the world's greatest city as it might. Far be it from the intention of an optimist to throw cold water on anything, especially real estate and all its various and intricate side lines, but facts are facts, and figures do not lie. Slowly but surely America is beginning to realize that war is all that Sherman said it was, and this war is even going Sherman one better, if such a thing be possible. There is no occasion for becoming alarmed, and not much use in being alarmed, even should there be the occasion, but with the beginning of May projected buildings in Manhattan show a falling off of more than twelve million dollars for this year, as compared with last year. It is a fact that coincident with the opening of the building season, that is to say, the calendar date for the opening, there was a decided falling off in plan filings. Twelve million dollars may or may not be a big sum, but the question arising is will that falling off arrayed with the constant and possibly compelling need of price advances make for a better building season? That is the question. And it is a question that is of no small moment. It is a question that is bound to be answered, war or no war.

New York recently had a "Wake Up America" day. Martial music rents the air day after day Soldiers and sailors, serious-faced and business-like, are everywhere, and even the gay night life along the Great White Way is not as gay as it used to be, for after May 1, by order of Mayor Mitchell, all lights had to go out at 1 a. m.—all corks ceased to pop, and many a New York cabaret is as quiet as tho a Zeppelin raid was expected. It's the spirit of the day. New York realizes that America is at war.

SPECULATIVE BUILDING TO STOP

It must be thoroly understood that there is no disposition to create false impressions in this article. Building must continue and will continue, but it is to be along conservative lines, rather than speculative lines. In Manhattan and the Bronx there is very little speculative building, but in Brookyn and Queens there has been considerable, especially in apartment houses and single and two-family structures, but it is going to be short lived. Reduction in this sort of building is likely to be keenly felt next autumn, is the opinion of some students of the situation.

From January 1 to April 28 there have been 2,849 plan filings, showing a value of $39,631,488, for new buildings and $7,275,358 for alterations, as compared with 3,278 filings in 1916, showing a value of $50,075,860 for new buildings and $9,267,043 for alterations. These comparisons, taken in connection with the serious condition brought about by the greatest war in history, furnish food for thought.

Here and there a particularly bright ray of light forces its way thru the cloudy horizon, and inspires anybody in search of an inspiration. For instance, the treasurer of the realty brokerage firm of Pease and Elliman submitted his report the other day for the fiscal year ending April 1, 1917, and directors of the firm learned that the firm had done the greatest business since its organization twenty years ago. An average of more than five contracts a day was shown, and this despite war conditions, abnormal situations in the labor and materials markets, and other things likely to retard the real estate market.

BUILDING SCARCITY STOPS MAY MOVING

May moving is the smallest in volume New York has ever known, according to real estate agents. This is due to several reasons, chief among them being the lack of new buildings. The situation in the downtown office district and financial center is exceedingly optimistic, because there are no new buildings to draw tenants from older buildings. All properties are in prosperous condition and will continue, according to present outlook, to pay their owners dividends on their investments—something some downtown structures have not done in many years. There is so little downtown space available that the demand exceeds the supply.

To those familiar with the real estate situation in New York there is a feeling that there can be nothing, so far as large undertakings go, but a marking of time until there is a clearance of the doubt about the immediate future of the United States and the part it is to play in the war. Capital there is, and plenty of it, but capital must needs be

careful, and capital is going to be careful. If it is hurtful to the market to be cautious then it will have to hurt, seems to be the opinion of those who are using caution and plenty of it, and in the meantime comes the news that in Manhattan the supply of mortgage money exceeds the demand. This is undoubtedly due to the high cost of materials, and with indications of still higher prices for building commodities some folks are already picturing more gold piling up with nobody to take it. The current rate of interest has increased from 4¼ to 5 per cent. and some of the big loaning companies are not encouraging building loans, because of the high cost of materials and uncertainty of the future.

PLETHORA OF MONEY WITH LITTLE DEMAND

Summed us, the situation appears to be like this. The United States is prosperous beyond measure, but is like the young man on Sunday, "all dressed up and no place to go." Prosperity and war do not make companionable partners. There is plenty of money, but there is also an inclination to hold on to it tighter than ever, not knowing what the morrow will bring forth. Taking chances is the great American way—in ordinary times—but speculation in building under present conditions does not appear to be as popular as it might be if Uncle Sam were at peace. No man wants to put a fortune in a sky scraper when he has a suspicion that some day it will cost less to build than it does now. Nobody will say that standards have changed and prices will not drop to any extent—that is nobody will give it out as a guarantee.

It is human nature, therefore, for people to hope for a lower cost "after the war." When "after the war" is to be is getting to be more and more of a serious problem. As America awakes America is realizing that this is a real war, and that there must needs be a lot more of blood shed before peace is to be had. Conditions are not as bad as they might be in war time, and there will be a certain amount of building projected anyway, but with conservation the watchword, there would appear to be good reason for expecting New York to proceed slowly and with great care to the extent that operators and investors will stop, look, and listen at every sign of danger.

* * *

Designing a Brick Pavement

To design a brick pavement requires the collection of considerable data, and a thoro knowledge of the district surrounding the highway or street on which the pavement is to be constructed, states an abstract appearing, in "Engineering and Contracting," of an address made by D. T. Black, Town Engineer, Welland, before the Canadian and International Good Roads Congress; the type and thickness of foundation, and the width of the pavement, depend largely on local conditions, nature of the subsoil, amount of traffic and the cost of materials. The local conditions denote the formation of the surface as to grades, and should be carefully considered from a complete set of cross-section levels taken the entire length of the proposed work, and close enough to give the correct quantity in cubic yards of excavation and fills. Information as to the productiveness of the district enters under this heading, and should show the industries of the district, whether heavy or light in street haulage, or whether a farming district, or a district for thru vehicle or auto traffic, or any specialty of the district. The nature of the subsoil informs as to the bearing power of of the soil, underdrain requirements, and cost of excavation and fills.

With the traffic statistics collected, the information on the local conditions, allowance for additional increase during the lifetime of the pavement and with past experience, a fair estimate of the traffic requirements can be formed. It has often been shown that immediately after a new pavement has been put into use the traffic has been doubled.

COST SHOULD BE SECONDARY

The cost of material enters largely into the design of the work. Local material may be very suitable and may considerably reduce the cost of the work; in such a case full advantage should be taken of such an opportunity. On the other hand, the material may require to be brought long distances, and consequently be expensive. In either case, the strength of the work should not be sacrificed in order to utilize a doubtful local material, or to save by the purchase of inferior material.

The construction of a tile drain under the curb is a point worthy of notice. I have heard a contractor say "Why, it is only a field drain, it does not require much care." It is perfectly true that it is only a field tile, but it has been more carefully specified than a field tile would be, and is more important than at first imagined. This curb tile is not below frost line, still its duty is to prevent water getting under the pavement, and to take care of moisture under the base. It should be laid so that each tile will empty, and thus prevent the formation of soft pockets under the curb. It should also be straight and directly under the curb, so that the curb form spikes may not crush it; and lastly, it is expected to remain in perfect condition the full lifetime of the pavement, and possibly longer.

NEW CONSTRUCTIONS OVERCOME NOISE

Brick pavements have, in many cases, been objected to, on account of the noise which follows after the first year in use. To some extent this was overcome by the introduction of newer types of pavements which have made possible a considerable improvement in the wearing of the surface. The introduction of the monolithic and semi-monolithic construction promises to still further reduce the objectionable rumbling noise. It is a step nearer the perfect brick pavement if a smooth surface can be obtained with the base and brick surface formed into one perfectly bonded slab, as in these types.

The monolithic construction, generally used on highways and streets not more than twenty-four feet wide, consists of laying the bricks directly in the green, or newly-laid concrete. The semi-monolithic construction consists of laying the brick on a superfoundation of cement-sand, which is mixed dry and spread on the prepared foundation. The brick, after being rolled, are well wet down, the cement and sand thus forming a mortar bed, which unites the wearing surface and the foundation.

* * *

Pioneer Eastern Brickmaker Passes On

Daniel J. Curtis, who, for more than forty years, has engaged in the brick manufacturing business and who has operated large plants at Springfield and Chicopee, Mass., and Hartford, Conn., died at his home in Chicopee, Mass., on April 20. He was born in Ireland and was eighty years of age at the time of his death. He came to this country with his parents when a small boy and the family settled in Chicopee, where he learned the masonry trade. He followed this line until 1868, when he went into business for himself as a contractor and builder. Later he branched out and acquired brick yards in Chicopee, Springfield, and Hartford and about seven years ago retired from all his business activities except brickmaking. For many years Mr. Curtis was a resident of Springfield.

The GENERAL MANAGER GETS HUNG UP *on a* COST FINDING PROBLEM



Then Why Have We Not Been Shipping to Our Bennett Plant From This Mine As Well As to the Cayley?

Is It Any More Fair for the Brickmaker to Give Away Coal Than for the Mine Operator to Give Away Brick?

By G. W. Greenwood

Secretary, United Fire Brick Company, Uniontown, Pa.

"MR. BARNES," said the general manager one morning, "last evening I was comparing the costs of the Bennett plant and the Cayley plant for making Bonus brand standard nine-inch series, on which both ran full last month. I was struck by the report that the Cayley plant shows a lower cost per thousand, altho the Bennett plant is better equipped and, according to all reports, is somewhat better managed. So I ran the costs over a 'piano wire screen,' as it were, and found the chief difference to be in the fuel costs, where the Cayley plant has a decided advantage, which was great enough to more than offset the higher costs elsewhere along the line. It looks to me as tho there is an African in the wood pile somewhere."

"The African is in the coal pile. The Cayley plant is supplied by a coal mine associated with this particular plant, while the Bennett plant has been obliged to buy coal, as always, on the open market. For the past few months the 'black diamonds' have been trying to rival their namesakes in price, which accounts for the big difference in the fuel costs of the two plants."

"Then it looks to me as tho we could close down the Cayley plant, and sell the coal, making more money than we can by using it to burn brick."

GIVING COAL AWAY

"That's about the size of it," acknowledged Barnes. "It reminds me of the men going fishing who asked a countryman near the stream to dig bait for them. When he appeared with a large pail of bait, and they asked how much he wanted for it, he said: 'The ground was hard, and the worms were deep, and the sun was hot, but as I want to go fishing tomorrow myself, if you will just let me have half of the bait I'll call it square.' At present we are digging bait and giving half of it away, but if we were to go into the coal business, when the bottom drops out we might be out of both businesses. We have to keep the plant going to hold our organization."

"Then why have we not been shipping to our Bennett plant from this mine as well as to the Cayley? Of course, in times past we could buy in the vicinity of the Bennett plant at better advantage than we could ship from the Cayley mine, but just now coal has risen to a point which relegates freights to a position of lesser importance."

"We can't secure freight cars. Wherever there is an excuse for a coal mine, and lots of places where there isn't an excuse, openings have been made and everyone is yelling for cars. On account of the scarcity of cars, mines are rated

and cars are distributed according to the percentage available. We are having our hands full just now getting enough empties to keep the Cayley plant going. I wish we had built that aerial tram when we discussed it some years ago."

"Yes, and we would most likely have been up in the air along some other lines," said the general manager, philosophically. "At any rate, there's no use crying about sour milk. Why don't we apply for an increased rating?"

"That's what everybody is doing, with the result that it is practically impossible to get a raise. I spoke to your predecessor about trying it and he said, 'Forget it!' so of course I had to pass it up."

"Then let us re-open the case. Go into the manner in which ratings are secured and see if eventually we cannot take care of the Bennett as well as the Cayley plants from this mine. But in the meantime, let's get back to the question of costs, which started all this discussion. Don't you really think the Cayley plant should be charged for coal from our own mines at the same market price that the Bennett plant is having to pay? Isn't our own mine as valuable to us as the ones now dotting the landscape—I would say polka-dotting the landscape, were it not for the fact that in many cases the output is yellow or red instead of black, and in others the only excuse for calling it coal is that it is black?"

THE REAL PROFIT PRODUCER REVEALED

Barnes got out his knife and began to cut circles around his pencil, finally vouchsafing, "That is open to argument. It has always been our custom to charge up only the actual cost of getting out coal, as well as raw material, such as fire clay and silica, plus a depletion charge. If we are to charge the Cayley plant with coal at the prices the Bennett plant is paying, it will show a loss instead of a profit."

"So be it, then. In olden times the bearer of bad news was often put to death. Now we simply readjust our accounting system so that the loss is shifted to some other point. Like a rubber doll, we squeeze it at one point and it bulges out somewhere else. If we are making the profit from the coal, let us give the coal mine the credit. How about other manufacturers? Are they able to juggle their accounts in such a way that the coal dealer will sustain their losses and share with them his profits from the coal mine?"

Barnes began cutting spirals around his pencil, and said: "Not that you could notice. In many cases brick plants are closed down because coal prices made their manufacturing costs too high. Of course, we can arrange our accounting so that the coal mine will receive credit at the current price for coal, but what if the price drops later and it is found that, at the low market prices, the mine is losing money?"

"Nothing will show this up quicker and better than the plan of separate accounts, such as your system admits of. We do not want any plant to bear the losses of a coal mine, so if we cannot produce profitably at current market prices we will just close down the mine and buy our coal."

"What would you do in case a man bought clay lands and found a vein of coal? Would you consider that the coal had cost him anything? Should he still put in the coal at current prices?"

"What should a man do who bought a farm and found oil on it? Should he give the oil away? Suppose we went into the business of building brick roads in connection with manufacturing paving brick. Should we put in our coal at cost, so as to keep down the apparent cost of pavers, and then put in our pavers at cost so that we should make no more money out of the entire chain of transactions than the contracting business alone should pay?"

HANDICAPPING LEGITIMATE ENTERPRISES

"Well, anyway, there's a lot of firms doing that very thing," contended Barnes, having made a fairly respectable totem pole out of his pencil. "A man once started an argument by saying, 'If things wasn't as they is,' when his opponent objected, 'But the fact is, they be.' Many stores advertise: 'We pay no rent,' ignoring the fact that insurance, interest or investment, taxes, repairs, depreciation are the same as rent and have to be reckoned with. As long as they do this, they handicap others until they go out of business."

"Yes," admitted the general manager, "there are such firms, and in the case of the Cayley plant we are one of them. You may have heard of the mother who promised her young hopeful some candy to keep him quiet, telling him that the longer he kept still the sooner he would get it. That's us. The longer we keep at it, the sooner we'll quit."

"Granted, then, that our own coal is worth as much to us as the coal we buy in times like the present, and worth as little when the bottom is out, just for the sake of argument, what would you say for the man who buys coal lands and finds he has also acquired a vein of fire clay. Take, for example, the case of the O. K. Coal and Coke Company which found a lot of clay on its property and started a brick plant. Should it regard its clay as costing nothing?"

"It should not only set a fair value on its clay deposits, but it should also charge up its brick at market prices, probably deducting what would correspond to a selling cost, since it does not have a sales force to maintain. But this brings up another phase of the case. You may have heard of the difference between the gentleman farmer and the ordinary

(*Continued on Page* 979.)



They Got a New Auditor Who Charged the Brick Plant With Coal from the O. K. Mines at Market Prices, and Then Charged the Brick to the Coke Plant at Market Prices, and the Brick Plant Showed Up So Deep in the Hole that They Decided to Bury It and Leave It There

RELATIVE EFFICIENCY *of* UP-DRAFT *and* DOWN-DRAFT KILNS

A Paper Read Before the Annual Meeting of the Wisconsin Clay Manufacturers' Association February 1 and 2

By J. D. Pratt

THIS IS A SUBJECT about which there has been more wrangling than has been occasioned by the European War, and I am not going to offer any peace proposition.

The construction of kilns is a subject which, like so many others, must be left largely in the hands of experts. At the same time, the subject is one of the most important the clayworker has to deal with, for if his goods go wrong in the kiln no amount of care afterwards will remedy the damage. Not understanding how to handle the kiln after it is properly constructed is the greatest cause of failure. A kiln of brick should be handled with as much care as a baker would use in baking an angel-food cake—and more so, for there is more at stake.

The subject of kiln construction is so broad that I will not attempt, in this paper, to discuss it, but will say that, regardless of the type of kiln in use "the man behind the shovel is the man who saves the fuel."

FIRING AN UP-DRAFT KILN

Up-draft kilns on the whole are considered wasteful of fuel, owing to the short distance the flame has to travel. Before it reaches the goods, in the old fashioned up-draft kiln, the flame is unduly cooled and poorly burned brick result. The fuel should have sufficient space for a perfect flame to be formed before it comes in contact with anything to be heated, and this is one of the reasons that down-draft kilns are considered more satisfactory and efficient. But the efficiency of present-day, modern up-draft kilns, with their outside furnaces and combustion chambers, has increased; they have been converted into fuel savers and producers of well burned brick with very little waste and with comparatively few chipped, or over-burned or crooked arch brick.

After your up-draft kiln is ready to fire, plating raised (we use double plating put on in the checker board fashion and raise every fourth brick), start the fires in the ash pit with wood or slabs, with the ash pit wide open and the furnace doors closed. Keep this up until the kiln draws in the smoke and has a good draft, then raise the fires on to the grates in the fire box. Then fire with smokeless coal or whatever kind of fuel you watersmoke with.

But go slow. You save money by not being in too big a hurry when you commence firing. Fire with ash pit and furnace doors wide open to get all the draft you can to drive the heat to the top and the steam off. After the kiln is dry, commence to heat up with the coal you use in burning. Increase the heat gradually with the ash pit doors open. Always keep them wide open and the furnace doors closed with about an inch opening to admit air and over draft. If your center is hard to get, set the upper half of the center more open. After the kiln is hot all over the top and the plating down, commence the hot firing.

SOME FUEL SAVING SUGGESTIONS

At this point you can either save fuel or burn double the amount necessary. To admit the proper amount of air to produce perfect combustion and no more is the problem confronting the burner at this stage. Therefore keep the grates and ash pits clean so the fire shows bright in the ash pit. Keep the furnace doors opened from three-fourths to one inch. Keep the grates covered with not more than three or four inches of coal, fire light and often. Never let the fires darken before you fire. Klinker every six hours, or oftener if necessary. Klinker with your furnace hot. Never open the door to drive the fire to the center. Keep the furnace as hot as the arches will stand, and keep even fires, and you will be surprised at the amount of fuel you will save in burning an up-draft kiln.

Some of the kilns we use are of the Wingard type. One furnace burns two arches, and others burn three arches. The flames do not travel directly into the kiln, but strike the back-wall of the combustion chamber, whirl over and around in the chamber until the gases are ignited, and then are drawn into the kiln arches; and it is almost impossible for cold air to get into the kiln.

ADVANTAGES OF DOWN-DRAFT KILNS

The down-draft kilns used chiefly for burning brick are the rectangular and the round. The main principle embodied by them is that of allowing the flame and hot gases to first travel to the top of the kiln, and then to be drawn down and away at the bottom. It is this great length of travel which causes the efficiency of the down-draft kiln in the matter of fuel and also helps very considerably in the production of a uniform temperature, as the air necessary for combustion becomes thoroly mixed with the gases before they come in contact with the goods. One of the points in favor of the down-draft kiln is that the brick which are subjected to the most intense heat are at the top of the kiln and have no other goods placed

above them so that they retain their shape better than in up-draft kilns.

It is essential that the ware be set in such a manner as to create an even draft thruout the kiln, otherwise the temperature will vary too greatly in different parts of the kiln. It is here that skilful and careful setting is of importance—even with common brick.

PROCEDURE FOLLOWED IN BURNING

In the operation of our round down-draft kilns this procedure is followed: After the kiln is ready to fire, the dampers are opened wide and kept open until the ware shows red on looking thru the upper peep-hole in the door. Up to this time the firing is done in the same manner as in the up-draft kiln. The dampers are now lowered until the kiln draws good without roaring, and left in this position for a few hours. The dampers are then raised and a good draft admitted for an hour, when the dampers are again dropped to their former position, where they are kept until the bottom of the kiln shows red.

At this point, the heat is bottled up in the kiln by closing the dampers until there is just enough draft to prevent the fires from backing out thru the furnace doors. The heavier firing is now dispensed with and the fires kept going by the "light and often" method for a period of two or three hours, after which the kiln is allowed to "breathe," as we call it, by partially opening up the dampers and firing strong for an hour or so. The dampers are then lowered again, as before. The damper is the throttle of the kiln, and performs much the same function as the throttle of an engine—one controls the heat while the other controls the steam.

Setting is of as much importance as anything to get good results. We set our bottom course stringer fashion so as not to obstruct the openings in the floor. The next two or three courses are then set three over one up to the top of the bag walls—eleven over four—except in the center where we keep it more open—five over two (ten feet in diameter). We set the rounders tight up to six courses of the top set and loose the rest of the way up. The brick are set tight every other course around the bag walls.

Our down-draft kilns hold 115,000 brick and we burn them with from seventeen to twenty tons of coal, or with from twenty-four to twenty-seven tons of screenings. Our up-draft kilns hold from 350,000 to 400,000 brick and we burn from seventy-five to eighty tons of coal or from eighty to ninety tons of screenings. This gives the down-draft the medal. And for up-keep and efficiency they are superior to the up-draft kiln. In closing, I want to state that the efficiency of any kiln is dependent to a great extent upon the manner in which it is handled.

STRAWS *that* SHOW *the* WIND

Brief Paragraphs from Many Points, Indicating the Market's Trend in the Light of Building Activity

THE BRICK SITUATION in Detroit remains the same, despite the declaration of war. While some building projects have been abandoned on account of the war, there are so many that are going ahead that indications point to a big business in both common and face brick. The general feeling here is that had conditions been normal this summer, the local manufacturers would have been unable to cope with the situation and that outside shipments would be necessary to fill orders. But with the war on, the manufacturers feel that they will be able to handle all orders and that it won't be necessary to go outside for a supply. The high wage for employes continues, and prices will remain where they were two months ago. The face brick dealers are very optimistic about the summer possibilities, and while it is true that here and there projects have been abandoned temporarily, there remains any number of other buildings that are going up just the same.

The new scale for Detroit bricklayers, which went into effect on March 1, will stand until January 1, 1918. It gives them an increase of five cents an hour. In 1906 bricklayers at this point received sixty cents an hour. The scale now is eighty cents, and calls for an eight-hour day. About 2,500 bricklayers are employed in Detroit.

* * *

The high price of building materials is stopping some forms of building in Ohio, but on the whole the effect is not as marked as one might suppose under the circumstances. The high price of steel has stopped some business blocks and the high price of brick and lumber has stopped some speculative building. No strikes of consequence have disturbed building in Columbus, but both Cincinnati and Cleveland have suffered from labor troubles. The records of the Columbus building department shows that many new projects are being carried out. Architects and contractors are still busy figuring on plans and specifications for new buildings.

* * *

The condition of the brick and clay products trade in the Louisville territory is to be stated principally in terms of car supply. Shortage of cars for making shipments and difficultics in obtaining sufficient labor constitute the greatest troubles of the manufacturers. There is business enough offered, but little use in undertaking to handle it unless cars for making deliveries can be supplied. Most of the manufacturers have out-distanced the carrying capacity and have accumulated stocks for which there is a ready market, but which they are unable to reach because of insufficient service. Several of the Louisville manufacturers speak of a number of big jobs which are absolutely tied up because they cannot get any kind of freight cars in which to ship. Retailers report that the demand seems somewhat off at this time and that prospective builders appear to be awaiting developments, altho their records show that in volume of business handled they continue to compare favorably with last year.

* * *

The New York state industrial commission has come forward with a statement declaring that building activity in ten of the first and second-class cities of the state was

(*Continued on Page* 978.)

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

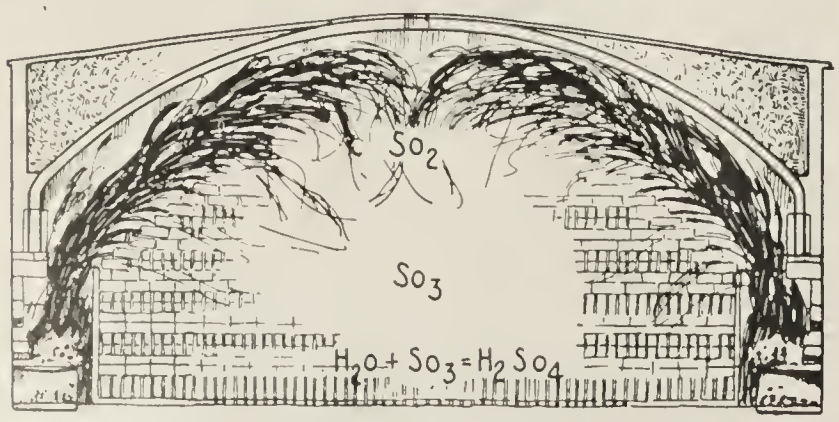
OVERCOMING TROUBLES CAUSED BY IRON PYRITES IN CLAY AND COAL

AN IMPURITY which very often occurs in clay used in the manufacture of brick and tile and other crude clay products, and one which often becomes exceedingly troublesome because of the serious results which it produces, is iron pyrites, expressed by the chemical symbol FeS_2, and sometimes called "fool's gold" because of its marked similarity to the precious metal when but hastily examincd.

Iron pyrites does not occur only in the clay but is often found in the coal used to fire the kilns, and in fact assumes its most troublesome form in this state. When heat is applied to a coal containing iron pyrites in the kiln fire-box, a chemical reaction takes place which liberates the sulphur from the iron, causes it to unite with oxygen, and assume the form of sulphur dioxide gas or SO_2.

This gas enters at the top of the kiln and, as so much air is admitted during the watersmoking period, it combines with still another part of oxygen, and becomes sulphur trioxide, or SO_3, when it reaches about the center of the kiln. This gas, sulphur trioxide, is known to have a close affinity for water and when it reaches the lower part of the kiln, it usually finds an abundance of H_2O with which to unite, the moisture having collected there because the draft was not strong enough to carry it off as fast as it was drawn from the ware set in the kiln. Combining with water, the gas assumes the form of H_2SO_4, or sulphuric acid, about which the average brick or tile manufacture knows enough to be sure that it accomplishes no good purpose.

The formation of sulphuric acid in the kiln at this early period opens up a trouble-chapter in the life of the ware manufactured. From it are produced sulphate salts, such as calcium sulphate, $CaSO_4$, which causes scumming. If the scum trouble does not develop as a result of its presence,



Cross Section of Kiln, Showing How Sulphur Dioxide Gas, Formed from Iron Pyrites, Develops Into the Troublesome, Scumming Sulphuric Acid

sulphuric acid may cause great trouble in burning the product to a hard, dense state, because it is exceedingly hard to drive off, refusing to be completely expelled from the clay body until the burn is almost finished. In fact, traces of it are often present even when the burn is over. A spongy, poor structure results.

One means of discovering iron pyrites in the coal or clay is to wash the material—the "fool's gold" will very readily reveal itself. To obviate the trouble which arises from its presence, it is often necessary to fire during the early part of the burn when moisture is formed in the kiln, with wood or gas, or to preheat the ware with warm air.

The trouble caused by sulphuric acid formation is amplified many times by setting wet, or green brick, since an overabundance of moisture is formed which the draft finds difficulty in removing quickly, and with which any sulphur trioxide gas present readily unites. It is very essential when scum trouble is experienced, to set the brick perfectly dry.

In overcoming trouble arising from this source, it is also advisable to have a good, strong draft to carry out the moisture as soon as it forms and thereby prevent it from settling or condensing on the lower courses of the ware.

INSTALLATION AND CARE OF LEATHER, RUBBER AND CANVASS BELTING

BELTING is the most widely used mechanical means for the transmission of power. Belts are made of several materials, among which the most common are leather, rubber and cotton.

The belting problem is one of transmitting maximum power at minimum expense. This can be obtained by the adoption of, and a close adherence to, standards in respect to the four following items:

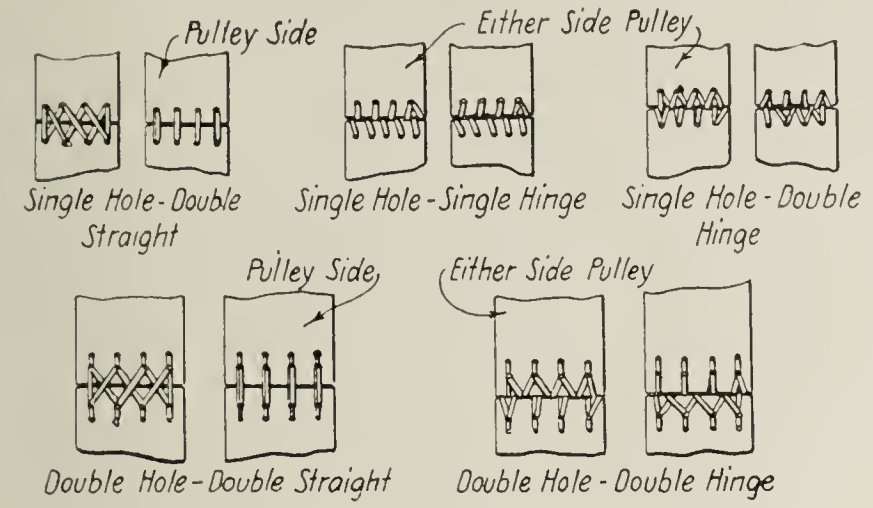
1. Quality of material.
2. Size of belt to use.
3. Speeds to run belt.
4. Methods of fastening.

SELECTION OF BELTING

Oak-tanned leather is usually considered the best for belting, altho many high grade belts are no longer tanned by the use of oak bark. Assuming that a good grade of leather is used, uniformity in the material is of first importance; that is, the different sections of which the belt is made should all be of the same grade. The belts should also be thoroly stretched so that they do not have to be taken up every few days. The leather for the best grade of belting is taken from the central part of the hide along the back of the animal. That part of the hide extending along the spine and for some distance down the sides is firm and close in texture, and strongest for belts. If the strips are cut too long, the ends will be taken from the neck of the animal, which is inferior stock. A "short lap" belt is one made entirely from that part of the hide which comes from the back of the

animal and the strips are not long enough to include any portion of the neck stock.

In ordering belts the seven following essentials should be observed.



Five Styles of Leather Belt Lacings

1. **Length.** Give exact distance around pulleys. Do not add extra length for lap because the manufacturer will allow additional length for lap.

2. **Ends.** State whether belt is to be "endless" or square ends or lap.

3. **Width.** Give exact width of belt in inches, not width of pulley.

4. **Grade.** State manufacturing name and trade name of belting.

5. **Ply.** Specify either single, double or three-ply.

6. **Finish.** State whether cemented or to be fastened with other fastening.

7. **Remarks.** Give kind of service belting is for.

APPLICATION AND SYSTEMS OF CARING FOR BELTS

Whenever practicable, belts should be installed so that the slack side is above and the driving side below the pulleys. If this condition is reversed and the slack side is below, the arc of contact is materially lessened. Belts should also be placed on the pulleys with the hair, or "grain," side next to the pulley.

A large part of the work of getting the most out of a machine consists in providing it with sufficient power. On belt-driven machines, the belt is often, and in fact most always, the limiting feature. If this is not in proper condition, especially regarding tension, slip will result, power will be lacking to obtain maximum results and, in addition, the belts will wear out quickly. A belt of any size and length is an expensive item, and is worth caring for systematically. In many plants the proper tension for each belt is determined, and secured by frequent adjustments, using a belt tension machine. The unit system of belting and the lacing of belt by machine lace methods permits the adjustment of a belt with little loss of time. The unit length of a belt is removed by removing hinge pin and a shorter unit length inserted.

BELT FASTENINGS

One of the best fastenings for a belt is the cement splice. It is said to be better than any form of lacing, belt hooks, riveting, or any other method of joining together the ends of a belt. The cement joint is easily applied to leather and to rubber belts, but to make a good cement splice in a canvas belt requires more time and apparatus than is usually at hand.

The following preparation can be used for cementing leather belts. Place equal parts of glue and isinglass in a glue pot. Add enough water to cover the two ingredients and let them soak for ten hours. Then bring to a boiling point and add pure tannin until the mixture appears like the white of an egg. Apply the cement while warm. For rubber belts use sixteen parts India rubber, two parts caulker's pitch, and one part linseed oil. These ingredients should be melted together and used while hot. This cement can also be applied to leather. The lengths of laps for cementing belts are as follows:

Size wide.....1 in., 2 in., 3 in., 4 in., 5 in., 6 in., 7 in., 8 in.
Length of lap.....5 in., 5 in., 6 in., 6 in., 7 in., 8 in., 8 in., 9 in.

It must be understood that in cementing belts (if no adjustment is provided to lengthen distance between centers) the problem of belt tension is made much more difficult as it becomes necessary to reglue the belt; this operation requires some two to five hours before belt can be used which would put the machine out of operation for that length of time. The other lacings can be changed in several minutes, and these joints are probably equal to ninety per cent. of the belt strength.

LACED BELT JOINTS

When making a laced joint, cut the ends of the belt perfectly square and punch the holes exactly opposite one another in the two ends. In each end there should be two rows of staggered holes. Begin to lace in the center of the belt. The lacing should not be crossed on that side of the belt which runs next to the pulley.

Five styles of leather belt lacings are shown in the accompanying drawing. Fig. 1 shows a single hole, double straight lace, used for light and medium grade double belts in running over pulleys sixteen inches in diameter and over, and transmitting light power. Fig. 2 represents a single hole, single hinge lace, which should be used for light grade single belts, running over pulleys six inches in diameter and less, at high speed and transmitting light power. Fig. 3 shows

BELT RECORD FORM

Length Ins
Date Applied Ply Belt No.
Unit Section Brand Position
Standard Tension Material Machine
Width Ins Cost Per Ft. Dept.

Date	Tension			Unit Section		Fastening		Dressing	Cond.	Recommend
Insp.	Obser	Final	In	Change	O.K.	Change	Applied	Belt	Remarks	

A Belt Record Form for Tabulating the Results of Periodic Inspection of Belts, in Use at the U. of I.

a single hole, double hinge lace, to be used for medium and heavy grade single belts, at high speed and transmitting heavy power. Fig. 4 illustrates the double hole, double straight lace,

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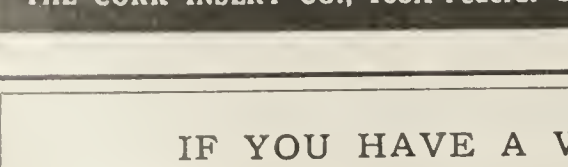
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UNION STEEL RIVETLESS CHAIN BELTING

Has Large, Glass-Hard Reversible Bearings. Fits Any Std. Sprocket



"The Chain of Double Life"

Reduces operating costs because it outwears several ordinary chains and gives TROUBLE-PROOF SERVICE wherever used. Sprockets, Buckets, Elevators, etc.—Send for Catalog

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To secure it you simply place a graphite sheet between the mandrel and the bearing box and pour in the babbitt. The result is a babbitt bearing impregnated with graphite spots. These bearings last from two to ten times as long on severe work.

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which should be used for light, medium, and heavy grade double belts, running over pulleys ten inches in diameter and over and transmitting heavy power. Fig. 5 shows a double hole, double hinge lace, used for medium and heavy grade single belts and light grade double belts running over pulleys ten inches in diameter and under, and transmitting heavy power.

BELT DRESSINGS

Rosin or rosinous mixtures should never be used to prevent belts from slipping. They will cause temporary adhesion, but the belt soon becomes glazed and slips more than before rosin was applied. Lubricating oils should not be permitted to drop on belts. If a belt has become saturated with oil, scrape it and pack it in dry sawdust or some other absorbent material for three or four days. When the belt becomes dry, all surface dirt should first be removed before applying a dressing; this usually can be done by cleaning the belt with a cloth dampened with kerosene. If necessary, use a metal or wooden scraper.

A good dressing for leather belts is made in the following manner: Take two parts beef tallow to one part cod liver oil (by weight). Melt the tallow and allow it to cool until the finger can be inserted without burning, then add the cod liver oil and stir until cooled. Apply this mixture to the driving side of the belt.

RUBBER BELTING

Rubber belts are used in places exposed to the weather or the action of steam, because they do not absorb moisture or stretch as readily as leather belts, under like conditions. The quality of rubber belting depends on the mixture used. There are, in general, two kinds of mixtures, one composed entirely of new rubber, and the other containing some, if not all, "re-worked" rubber—discarded rubber articles. The weight of the cotton duck is another important consideration. High-grade belts contain what is known as a 32-oz. cotton duck, and the cheaper grades have either a 30-oz. or 28-oz. duck. If the proper weight of duck is used, a three or four-ply rubber belt is equal in strength to a single leather belt; a five or six-ply rubber belt is equal to a double leather belt, and a seven or eight-ply rubber belt is equal to a triple leather belt.

A good dressing for rubber belts is made by mixing equal parts of red lead, black lead, French yellow, and litharge with boiled linseed oil and enough Japan to make it dry quickly. Animal oil or grease should never be used on rubber belts.

CANVAS BELTING

Canvas stitched belting is made of several laps or plies of cotton duck stitched lengthwise and the belt is afterwards treated with a compound made principally of linseed oil. This oil saturates the cotton duck, which is thus protected from dampness, and the belt is not easily injured by heat, cold, gas, steam, or acid fumes. Canvas stitched belting is often used where the material coming in contact with the belt or the surrounding atmosphere would ruin an ordinary leather, cotton or rubber belt. It is applicable to belt conveyors, when the material to be handled will not cut the cotton fibre. Rubber belt dressing may be used on the canvas belt.

TO DETERMINE THE LENGTH OF A BELT

One of the common shop practices used to determine the length of a belt is to measure the distance around pulley with the steel tape, and then measuring the belt short to allow for tightness. In the unit method of belt lacing the belt is cut short and then placed in position and brought to proper tension with a clamping device, tension being deter-



mined by belt tension machine. The unit is then made the proper length and put in place.

A simple rule which can be used with fair accuracy when the pulley diameters are nearly equal, is as follows:

Add the diameter of the two pulleys, divide the sum by two, and multiply the quotient by 3-1/7; then add to the product twice the distance between the centers of the shafts. Expressing this rule as a formula, in which D=diameter of large pulley; D′=diameter of small pulley; C=center distance between shafts, and L=belt length.

$$L=\frac{D+D'}{2}\times 3\,1/7+20$$

BELT RECORDS

Individual belt records are of value in keeping track of their maintenance cost, and also in calling attention to overloaded ones as indicated by the frequency of repairs. The accompanying belt record chart is one which has been perfected by the Mechanical Engineering Department of the University of Illinois and which has been put into use in its shop laboratories.

Systematic inspection of belts will prevent much loss of production time. As a rule, all belts should be overhauled every six months, and those with heavy loads much more frequently; about once a month. All belts that run on step pulley, and are frequently shifted, tend to stretch faster than others and must be looked after at least once a week.

* * *

Brickmaking Center to Drop German Name

The town of Berlin, the center of the brickmaking industry in Connecticut, may soon appear on the map under another name. A strong sentiment has been found in favor of eliminating the German cognomen and a mass meeting recently discussed the advisability of petitioning the legislature to bestow some more American name on the town. Berlin was once known as Worthington and it is possible that this name may again be used.

* * *

Hackensack (N. J.) Yards Start Off Slowly

While operations have begun in the Hackensack (N. J.) district, little headway has been gained, because of continued rain and cold weather. The Mehrhoff Brick Company has already completed the season's first burn, and the Hackensack Brick Company has also started the wheels in action. Edward Schmultz has started manufacturing brick for the season, but, like the others, has not progressed very far, because of the unfavorable weather conditions. It is interesting to note that the brick are shipped from this point by all known means of water-transportation; the old fashioned scow, propelled by two long oars, each worked by two men, the single masted schooner, or "wind jammer," and the modern steam tug towing the huge barges carrying in excess of one-half million brick.

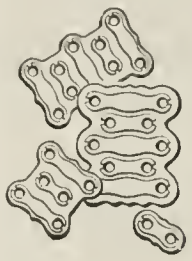
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Who Has Copy of June 2, 1914, Issue for Sale?

One of our readers has occasion to refer to the June 2, 1914, issue of "Brick and Clay Record," and since our supply of this issue has long since been exhausted, we are appealing to our readers, asking that some one who has a copy of this particular issue with which he is willing to part, get in touch with the Editor at the earliest possible moment. In writing to offer the copy of this particular issue, kindly state the price desired.

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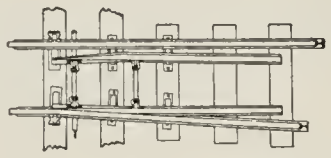


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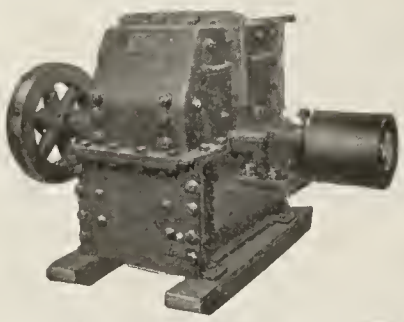
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QUESTIONS

A Two Cent Stamp May Bring You Advice That Will Stop a Waste, Improve Your Ware or Lower Your Production Cost

Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

Recovering Coke from Kiln Ashes

819. *Pennsylvania—Can you tell me of any process that is being used to recover coke from ashes that come from burning kilns? Do you know of any manufacturers making machinery for this purpose?*

This question, together with a short answer, appeared in the April 10 issue of "Brick and Clay Record." Roy G. Smith, of Kansas City, Mo., having read this question and answer, comes to the rescue, in the absence of exact information, with the following letter, under date of April 14:

"We have in this territory a manufacturer who makes common brick and is putting the entire ash output of his kilns into the dry-pan with the clay. Under this system, he of course, recovers all of the fuel value in the coal and in addition replaces a certain volume of clay with material which has to be disposed of and therefore costs nothing.

"The brick are somewhat lighter and this makes a saving on freight cost so that as long as the product meets the approval of the buyers he has secured a material advantage.

"Any clay man will understand that this could be done only where all the conditions are favorable to it, including the nature of the product and the properties of the clay being used. No doubt, there are numerous places where this practice would be of value."

* * *

Preparing Samples for Trunk Displays

815. *Illinois—We have quite a few calls from our agents for slabs representing the face of our brick for use in trunk displays. We have tried to make these up by cutting the slabs from the brick when green, but this operation apparently so changes the brick that we did not get a correct representation of the actual face.*

If we knew of some way of cutting the slab from the actual brick, it would solve the question. We have tried doing this, but as yet have not found any way but that is out of the question on account of the item of expense. We know other manufacturers do this and wonder if you would advise us on this matter.

Since publishing an answer to the above inquiry in our issue of March 27, in which we outlined a method of preparing face brick trunk display samples by breaking off the backs of the brick and sending them to the nearest stoneyard to be ground on a rubbing bed to the desired thickness, we have received a suggestion from a ceramic engineer of considerable ability, showing a way in which the slabs may be cut economically with the true color of the full size brick retained.

This method consists of stretching a wire across the mouth of the die a sufficient distance from the top to give the thickness of the desired slab and attaching a roller to some part of the machine or to the die so as to press down



and ANSWERS

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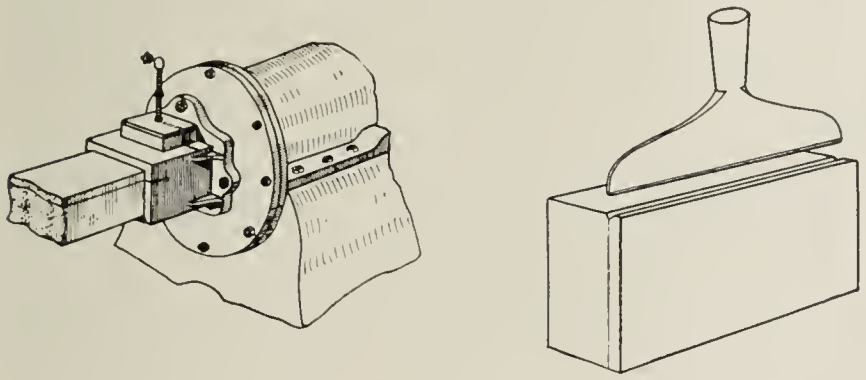
Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

upon the top of the clay bar, after it issues from the mouth of the die and has been cut by the wire. The roller, pressing upon the top of the clay bar, re-unites the two divisions sufficiently to carry the cut brick thru the burn as a single unit, which would preclude any variance in color from that which would otherwise have been obtained.

After coming from the kiln a blow from a hammer should be sufficient to part the slab and the remainder of the brick.

It is often very difficult when this system is used to separate the slab from the remainder of the brick because it has been so firmly re-united during the burn. In fact, our enquirer, upon being informed of this method, writes that he has tried it "but found that when the slab is pressed back on the major portion of the brick hard enough to hold the slab in perfect shape, that it is so closely united during the burn that it can not be broken apart without losing practically all of the slab by breakage."

A very simple means of overcoming this trouble is to run the point of a pen knife or shears along the line of severance on one side of the column, leaving a groove deep enough to receive the top of a tool similar to that shown in the accompanying sketch.



On the Left Is Shown Wire Stretched Across Mouth of Die to Cut Off Slab of Proper Thickness for Trunk Display Samples. On the Right Is Shown Method of Severing Slab from Remainder of Brick, After Burning, Without Breaking It

When the slab becomes so closely re-united to the major portion of the brick during the burn that it can not readily be separated without being broken, a tool like that shown, inserted in the depression made by the pen knife and struck a heavy, sharp blow will invariably produce the desired result. According to the party who suggests this method, it is employed with great success at a number of large face brick manufacturing plants and with very little breakage.

Wants Advice on Curing Stoneware Blisters

818. *Indiana—We experience considerable trouble with blistering. This occurs in our stoneware, which is saggered or placed inside of open ware (jars, churns, and so forth). We use a glaze similar to the one you give in the December*



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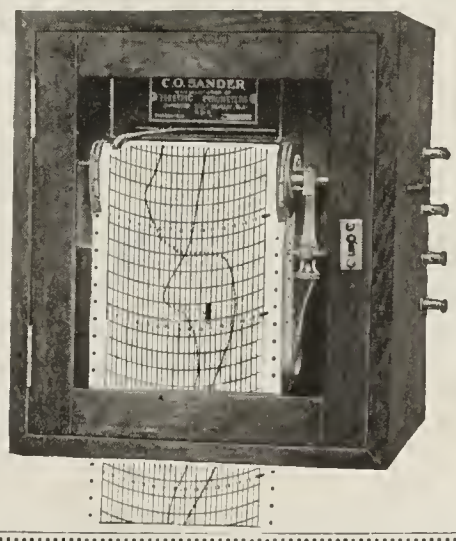
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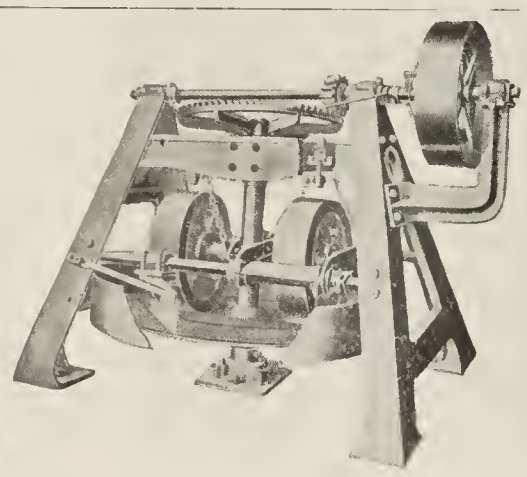
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19, 1915, *issue of "Brick and Clay Record" under "Questions and Answers" No.* 804. *Our ware is one fire and slipped dry. The ware that is exposed to the fire never shows a blister, but the inside ware has this fault. Owing to this trouble we have lengthened our burn from forty-eight to sixty-six hours. This slow firing helps a great deal, but we know that we should receive good results with the above fault eliminated with a forty-eight-hour burn, if we could get at the direct cause of the blisters, and at what temperature they take place. We slow fire the first thirty-six hours without clinkering, then we clean out the ashes and give the boxes air underneath, and by the time we reach the forty-eight-hour period our kiln has reached a cherry red. At fifty-four hours we turn cone* 2. *At sixty hours we get cone* 6 *on top, and at sixty-six hours the kiln is done with cone* 8 *on top and cone* 7 *on bottom.*

"Regarding the answer to question No. 818 which appeared in the April 10 issue of 'Brick and Clay Record,' concerning the trouble with blisters in stoneware," writes a reader, "it seems to me that the party is on the right track when he gives more time in firing the ware but probably does not give this time at the proper period. My experience has shown that if ware is not thoroly oxidized blistering is liable to occur. If all the gases are driven off at a low heat and all the clay oxidized at temperatures from first visible heat, say from 800 to 960 degrees C., I believe the trouble spoken of will disappear.

"It is reasonable to assume that ware placed inside of other ware will not heat as fast as that directly exposed, and for this reason, I believe that a change to the method mentioned before will help. In other words, try to get all the ware in kiln to same temperature in the oxidation period."

Steam and Waste Heat Dryers on Iowa Clays

820. *Iowa—We are having considerable trouble in drying our drain tile in a waste heat tunnel-dryer. We have in operation a nine-tunnel dryer, the suction fan runs at* 85 *R. P. M., exhaust fan at* 132 *R. P. M. The temperature varies from* 130 *to* 140 *degrees in each tunnel. Almost one-half of the ware is cracked when it comes out. We take out and put a car in each tunnel, keeping sixteen cars in all the time. It takes about two days for a car to go thru. Our mixture consists of joint clay and shale mixed half and half, and thoroly pugged. In your opinion what is our trouble; can you suggest a way to overcome this loss by cracking?*

The above question, together with an answer, appeared on page 763 of the April 10 issue. Since that date we have received the following carbon copy of a letter from Roy G. Smith, of Kansas City, Mo., to Homer F. Staley, of Ames, Ia.:

"I note your letter in the last issue of 'Brick and Clay Record' referring to the characteristics of different types of dryers, and that you make some very definite statements in this connection which may possibly bring forth some letters with different opinions.

"This is not one of them, however, but the point I want to make is, that we have found by experience that in some cases, especially on hollow-ware, that a large part of the dryer trouble is really machine trouble, that is to say, that in making tile, it frequently happens that there are initial stresses in the column which make it absolutely impossible to dry the ware without checking.

"I have no doubt but that you recognize this condition, but wonder how far and in what direction you have gone looking for the remedy."



The LETTER BOX

A Place Wherein Letters That Have General Interest Are Published and Commented Upon

The Enduring Presence of Lamination

The elimination of lamination in paving brick is a physical impossibility—that is, if you mean the actual presence of this characteristic in the ware. However, if you refer to the effect of laminations upon the rattler test, that is a different story, and while we hardly believe that the absolute elimination of the effect of laminations upon the rattler test is possible, yet it is very true that steps can be taken to very much reduce the effect of this defect upon the test.

In line with this thought, we are in receipt of a letter from Will P. Blair, secretary of the National Paving Brick Manufacturers' Association, Cleveland, Ohio, commenting upon the leading article in the "Superintendent" department of the April 10 issue, which bore the title of "Importance of Exercising Care in the Preparation of the Raw Material and the Molding of the Ware." Mr. Blair's letter reads as follows:

In reading "The Superintendent," "Helpful Hints," and so forth, in your issue of April 10, under "Reducing Lamination Losses at Pug Mill," I notice the writer falls into a common error of statement that evidently was not intended, but such mis-statements lead sometimes to very severe punishment in the house of our friends.

The writer states "The object then becomes one of getting the maximum issue of the clay bar per revolution of the shaft. When this is obtained, lamination is decreased," and then again, under "Two Types of Auger Machine Barrels," using the words, "eliminating any possibility of lamination which might be caused by clay catching in corners."

The inference reasonably drawn from such expressions is that laminations in brick are avoidable, and it is just by reason of such expression that engineers draw the conclusion that leads them to say in their specification requirements for quality of brick "without laminations." It must be borne in mind that every brick made by an auger machine is made by a process of laminations. Therefore, every brick is simply a series of laminations, so we are obliged to preach to the consumer, to the engineer, and architect that there is no such thing as a brick without laminations, except those made by the method usually termed "soft mud" or "slop brick."

Evidently what the writer is seeking to present in the structural formation of the brick is that these layers are so perfectly united that they will appear to have no existence, but they are there all the same.

Thus our teaching and instructive effort for a brick of the greatest natural strength should be to direct how best to more perfectly unite these laminations of which the brick consist.

While the author of the article in question did not mean to convey the impression that the physical presence of lamination in the ware could be absolutely eliminated, he should have made himself more clear, and for this reason, Mr. Blair's letter is a justifiable correction.

* * *

More About Producer Gas

Following the somewhat lengthy discussion of this subject in the April 24 issue of "Brick and Clay Record" in the Letter Box," we are in receipt of the letter given below which was written by Rufus J. Carson, of Detroit, Mich., giving us

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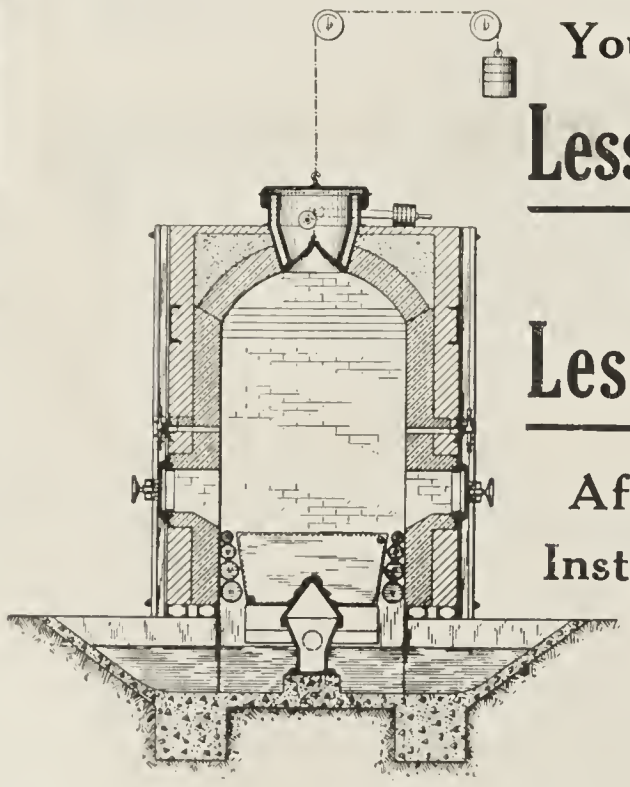
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his opinion on the subject. Mr. Carson writes under date of April 30 as follows:

I have read with much interest the discussion between Mr. Harris and Mr. Lovejoy as to the relative value of results produced by direct coal firing and by producer gas.

It seems to the writer that in their efforts to make the points clear they are both clouding the main issue simply by treating the subject from a technical standpoint. The majority of clay products manufacturers are not chemists nor are many of their managers or superintendents, but they are vitally interested in any system that is able to produce any real reduction in the cost of burning their ware, regardless of whether this is brought about by using less coal or a smaller number of men, provided always that the results obtained shall be satisfactory.

It seems to the writer that when Mr. Harris meets parties who doubt the economy of producer gas (let it be applied to any system) he should be able to prove his statements as to its economy and thereby disprove the statements of his opponent in somewhat the following manner.

It is well known to the clay manufacturers as a body that there has been quite a number of plants changed from direct coal firing to producer gas firing in the past three years and it ought to be a simple matter to produce and compare the figures as to the cost of both systems. Moreover, seeing that these plants are situated in various sections of the country which would make it necessary for them to use different grades of coal and for the ware to be burned under different conditions, these two points should settle the question as to its being a practical success.

With these facts and figures before him Mr. Harris should not have any difficulty in convincing clay manufacturers as to the value of producer gas. With the technical side of the question they are not likely to be interested, but if Mr. Harris can really convince them of an actual saving and better results he should be able to make his point with prospective purchasers and that I presume is what he is seeking.

The writer will hope to see this question thoroly opened up.

We sincerely trust that our readers will follow the suggestion contained in the last paragraph of Mr. Carson's letter and enter into the discussion of producer gas. The Editor will be glad to receive letters containing such a discussion.

* * *

The Need for Better Building Codes

The publication of a paper read by E. H. Darling, M. E., before the convention of the Canadian National Clay Products Association at Hamilton, Ont., in January and entitled: "Clay Products in Engineering Construction," seems to have aroused quite a bit of interest. A letter commenting upon this article, received from William A. Butler of San Francisco, was published in the April 10 issue, in "The Letter Box." Since that time we have received another letter which has a bearing upon Mr. Butler's missive and which has to do with this same article.

We, here in the United States, have been under the impression that no building codes could be as unfairly drawn as are those for many of our leading cities. It seems, however, that Canada has gone us one better in this respect in that a burned clay brick is not allowed any more credit for its ability to carry loads than is the unburned clay upon which the foundation of the building rests. This is a startling fact and more details concerning it are given in the following letter from Gordon C. Keith, secretary of the Canadian National Clay Products Association, who writes us under date of April 18 as follows:

I was much interested in Mr. Butler's comment on the paper by E. H. Darling read before the C. N. C. P. A. Mr. Butler appears to have the idea that Mr. Darling was "knocking" brick. This was not his intention. His intention was to "knock" the city by-laws which did not do justice to the use of brick.



Mr. Darling said: "But there are still other handicaps put upon the use of brick work which are not necessary. In some cities the building by-laws will not allow even conservative unit stresses, but fix the limit as low as four tons per square foot—about what is considered safe for solid earth."

Later on in his paper Mr. Darling says: "Another cause of waste is that referred to above—the unscientific and sometimes absurd requirements of the building by-laws of many cities. Conditions imposed in some cases are made so arduous as to be prohibitive and actually put a premium on the poorer type of construction."

Mr. W. W. Pearse, city architect, Toronto, in discussing this same subject says: "In looking up the New York, the Chicago, and the Philadelphia by-laws, in fact all the American by-laws, I find that for ordinary brick laid in lime mortar they will allow you eight tons to the square foot of pressure. For the same kind of brick, laid in cement mortar, they will allow you eighteen tons per square foot. In the Canadian by-laws we find they will allow for the ordinary kiln-run brick four tons to the square foot. For those laid in cement mortar, they will allow six tons. Further, you will find that on gravel they will allow you eight tons, while on clay it is four tons. These comparisons are startling. In other words, you find that they will allow you to put a greater pressure on your foundation than on brick. In reference to clay. Here is the clay in its natural state. They will allow you to put on four tons per square foot, and after it is burned will allow you just the same pressure."

To remedy the situation in Toronto, the C. N. C. P. A. appointed a committee to co-operate with Mr. Pearse with the result that extensive tests have been made and it has been recommenred that brick be divided into three classes.

Class "A"—All brick testing over 4290 pounds per square inch in compressive strength.

Class "B"—All brick over 2860 pounds per square inch and under 4290 pounds.

Class "C"—All brick testing under 2860 pounds per square inch.

The class under which different makes are listed regulates the jobs on which it may be used.

This will permit a wider use of brick as well as a more economical use. These, of course, will be varied depending on whether cement or lime mortar is used. What is being done in Toronto will, we hope, make it easier to have rational by-laws adopted in other cities and towns in the Dominion.

Building codes are an important matter for the consideration of the clay products manufacturer and should receive more attention than is being given them. Money spent in this direction is money well invested.

* * *

Georgia Clay Mining Company Incorporated

A new corporation composed of Macon (Ga.) business men, has been organized at that point for the purpose of mining clay. The new company is known as The Georgia Realty, Mining and Manufacturing Company, with offices in the Georgia Casualty Building.

U. R. Hatfield is president of the company, Joel A. Smith, vice-president; H. R. Brown, secretary-treasurer, and W. S. Deidrich, general manager.

The company owns a large acreage of bauxite, kaolin, and Fuller's earth clay in Wilkinson and Twiggs counties. The estimate tonnage of bauxite is 10,000,000, kaolin tonnage 7,000,000, and 4,000,000 tons of Fuller's earth.

A market for these mining products has already been found with large manufacturers in the north and east. The company is to open a bauxite mine, two kaolin mines and one Fuller's earth mine for the output of their products. They will begin shipping clay soon and will be prepared to handle contracts for the next five years.

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IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Howard H. Leach recently returned to Kokomo, Ind., from a winter's sojourn in Florida. Mr. Leach will assume the management of the Leach Brick Yards at Kokomo.

Cleve Hartzell, erstwhile superintendent of the What Cheer (Iowa) Clay Products Company, and author of some very valuable articles which have appeared in recent issues of "Brick and Clay Record," has accepted the position of superintendent of the Monmouth (Ill.) Clay Manufacturing Company's plant.

Howard M. White, sales manager of the brick department of the Hocking Valley Products Company, Columbus, Ohio, was married on April 26 to Miss Dorothy Canfield, of Columbus. Following the wedding ceremony, a short trip was made. Mr. White and his bride returned to Columbus, May 4.

H. C. Kleymeyer, manager, and John Andres, secretary and treasurer, of the Standard Brick Company, Evansville, Ind., made large contributions to a campaign which was recently waged in Evansville to bring Moore's Hill (Ind.) College to Evansville from Moore's Hill. Both Mr. Kleymeyer and Mr. Andres served on the campaign committee.

An item was published in the April 24 issue of "Brick and Clay Record" stating that "C. W. Irwin, formerly manager of the Minneapolis (Minn.) branch of the Hydraulic-Press Brick Company, has been placed in charge of the branch at Davenport, Iowa, to succeed J. L. Buckley, who recently resigned to take charge of the Capital Clay Company, of Des Moines." We regret to state that an error crept into this item, inasmuch as Mr. Irwin was not previously manager of the Minneapolis office, but was transferred from the sales force at Minneapolis, to Davenport. S. J. Hewson is manager of the Minneapolis office.

Arkansas

According to a letter recently received from George W. Conklin, manager of the Mena (Ark.) Brick and Clay Company, that company's plant is to be again placed in operation after a shut-down which has extended over a period of two years. It is expected that the plant will be working to capacity shortly after the middle of May.

California

The brick manufacturing plant located at Hilton, Cal., formerly owned by the Thompson Bridge Company, has been sold to Harry Mitchell and Company The new owners will open the plant shortly, and will employ a force of about fifty men.

Manager P. D. Bryce, of the King City (Cal.) Brick Company, announces that the first burn of the material manufactured at the new plant was highly satisfactory. Besides Mr. Bryce, G. S. Randall and W. W. Bond are interested in the King City company.



Brick and terra cotta manufacturers in California were highly pleased when Senator Flaherty's bill, authorizing a submission of separate bids on the brick and terra cotta work for state structures, was recently passed. This action has freed them from constant "dickering" with general contractors, which was formerly necessary in order to have their goods given a chance on public jobs.

The Livermore (Cal.) Fire Brick Company has filed notice of a change in its title to the Livermore Fire Brick Works. E. H. Covalt, who was secretary of the old company, retains a similar position with the new corporation, while T. L. Myers remains as general manager. Mr. Myers' activities in the sales department have brought forth an abundance of new business and present indications point to a very encouraging year for the Livermore company.

Colorado

Improvements were recently made at the plant of the Golden (Colo.) Fire Brick Company, at a cost in excess of $60,000, which greatly increased its former capacity of 6,000 fire brick daily. The new equipment consists of represses and heavy-duty pug-mills. Besides supplying a large amount of fire brick used in Colorado, the Golden company is shipping its products to many points in Nevada, Washington, Utah, Wyoming and other states.

The Jewitt Fire Brick Company, of Canon City, Colo., has been awarded an order for 100,000 face brick to be used in the construction of a new depot being erected at Florence, Colo., by the Denver and Rio Grande Railroad. This company recently began work on some improvements and extensions to its plant, which will enable it to meet the increasing demand for its products. A new kiln, thirty feet wide and seventy feet long, has been constructed and a dryer will soon be erected. When these improvements have been completed the company plans to manufacture hollow tile as well as brick.

Georgia

A large contract calling for brick to be used in the construction of a $1,500,000 station, to be constructed at Jacksonville, Fla., was recently received by the Standard Brick Company, of Macon, Ga., and involves at least 1,000,000 brick. This company has also placed its bid for a large plant to be erected in Jacksonville by Armour and Company, which will also require about 1,000,000 brick.

Idaho

The plant of the American Falls (Idaho) Press Brick Company was conditionally leased to J. F. Kasanke at the annual meeting of the stockholders, held recently. F. D. Wedel, who has been manager of this company for the past two years, has moved to Salem, Ore.

The Nezperce (Idaho) Brick Company has been incorporated with a capital of $15,000 by Clay Smith, C. W. Booth, E. G. Bury, Ernst Weinss, P. W. Mitchell, Ivan Jorgens, K. G. Osterhout, W. J. Ramey, E. H. Waters, J. R. Dunham and Henry Sullivan. This company is planning to construct a brick-making factory at Nezperce, which will be placed in operation some time during May or June, and which will be under the management of E. H. Berg.

Illinois

The Illinois Fire Brick Company has been incorporated

The problem of maintaining tight valves is most effectively solved --when you equip with--

Jenkins Bros. Valves

Considering the service, they are more economical and far superior to the common metal seat types. Jenkins Bros. Valves have no metal-against-metal contact of seat; instead, there is the combination of brass raised seat and Jenkins renewable composition disc. The labor of regrinding is obviated. When repair is necessary, simply insert a new disc at expense of a few cents, and you have practically a new valve. Any dealer can supply. All genuine have diamond trade mark, as shown in the cut.

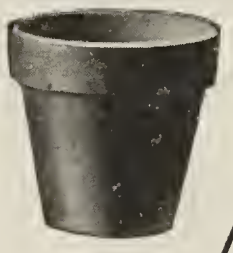


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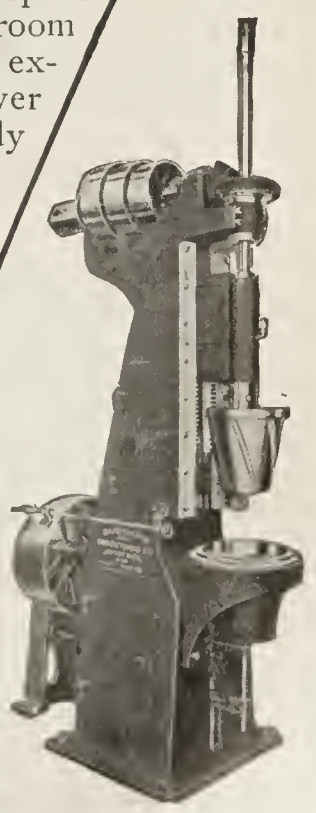
A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

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HETTRICK Red Stitched Canvas Belting

Sticks tight on the pulley, has a peculiar faculty of adhering tightly even under excessive loads. It is stitched, the plies do not part, the edges do not ravel, the resistance to oil, grit and water is high. There is little stretch in service.



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HIGH RESISTANCE MULTIPLE RECORD
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Their Merits are Vouched for by Hundreds of Satisfied Users
Ask for our New General Catalog No.8

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at La Salle, Ill., with a capital of $5,000, by I. Stanley Filip, Jas. S. Samuels, and T. Behr.

Nineteen students in the College of Engineering at the University of Wisconsin, Madison, recently made an inspection trip thru large plants of the Barr Clay Company and the Streator Drain Tile Company, both at Streator, Ill. Especial attention was paid by the students to the engineering layout of the factories.

Several of the officers of the Gates Fire Clay Company, Colchester, Ill., recently witnessed the drawing of the first ware manufactured at the company's new plant, and expressed great satisfaction over the results of the first burn. The plant is a new one, designed for a capacity of twelve kilns, altho the present battery consists of but six, and will manufacture flue lining, fire brick, and ground fire clay commodities.

Indiana

Altho the condition of the car situation obtaining in southern Indiana at the present time, according to brick manufacturers of this section, is comparatively favorable, yet it is feared that during the melon and grain-shipping periods, which are rapidly approaching, the car shortage will again assume menacing proportions.

The Cannelton (Ind.) Sewer Pipe Company, in "doing its bit" to reduce the high cost of living, has had the vacant lots adjoining its large plant converted into potato patches. The growth of the "spuds" will be looked after by the employes of the company when their time is not otherwise occupied.

An adjustment of the business of the Indiana Brick Company, located at Anderson, Ind., has been asked in a petition filed a few days ago in the Madison County Superior Court, by John Ken, superintendent of the company's factory and possessor of a block of the company's stock. This action was precipitated by the recent death of Frank W. Makepeace, of Anderson, who owned ninety per cent. of the stock, and who managed the business.

"Not to talk war, but to push business" has been adopted as the slogan of Evansville's brick manufacturers and it certainly is a winning one. A very good business is reported from this city and southern Indiana at the present time, and manufacturers are of the opinion that the summer and fall will find a very optimistic situation prevailing. War has not materially affected the brick business in this section as yet and the opinion is held that it will have little influence upon the sale of burned clay products.

Many improvements are being made at the plant of the Cannelton (Ind.) Clay Products Company. A large fourteen-ton dry-press brick machine and a nine-foot dry pan have recently been installed. The entire output of this company at the present time consists of fire brick, orders for which are far in advance of the available supply or the plant's capacity. It is planned, however, to manufacture building and paving brick some time in the future. The Cannelton Clay Products Company has expended about $10,000 on improvements designed to modernize the plant.

Iowa

According to a recent report, M. C. Bridenstein was recently made manager of the Riverside Brick and Tile Company, of Kalona, Ia.



Kentucky

The Kentucky Fire Brick Company, of Portsmouth, Ohio, intends doubling the capacity of its plant at Firebrick, Ky. It is understood that a lease has been secured on a plant near Sciotoville, Ohio, which will aid largely in meeting the heavy demand for its products.

M. J. Bannon, president of the P. Bannon Pipe Company, Louisville, Ky., said that there was plenty of business in sight if the company were only able to handle it. Shortage of cars and of labor is proving a double handicap at this time. The company recently took out permits for the erection of two additional sewer pipe kilns at its plant, located at Fourteenth and Breckinridge Streets, Louisville.

At Paducah, Ky., the Mayfield Clay Company has been incorporated with a capital stock of $100,000 and a debt limit of $25,000 by W. M. Reed, H. C. Overby, D. H. Hughes, R. B. Phillips, R. R. Winston, and W. J. Watkins. The company will operate extensive clay mines in Graves County, Ky., and will maintain headquarters at Paducah. The clay is said to be of fine quality and will be used in the manufacture of chinaware and tile.

With orders for some four hundred cars of brick and hollow tile booked, the Coral Ridge Clay Products Company, of Louisville, Ky., has about reached the "saturation-point," simply for lack of cars in which to make shipments, according to James T. Howington, general manager of that company. At this time the company is more than one hundred cars behind on deliveries, and there are several big jobs and a number of smaller ones being tied up because of a lack of tile or brick with which to complete the work.

On the last day of April the architects, D. X. Murphy and Brother, opened bids on the Louisville Auditorium. No contracts were awarded and it was given out that they would be taken under consideration for a time. It was reported about the building trades circles of the city, however, that the reason for the postponement of action was that the bids ran about $100,000 or 33⅓ per cent. above expectations and over the amount of money which the Auditorium Association will have to spend. It is not impossible that this is another building project which will await later action.

A sample of what is happening to building projects in the vicinity of Louisville is contained in the decision of the Pendennis Club to defer indefinitely the erection of a large annex to the club house. This is a large club, containing in its membership most of the leading professional and business men of the city. It recently absorbed a large young men's club and it was definitely proposed to erect a large addition in the form of a dormitory. At a recent meeting of the club it was decided that, in view of the unsettled condition of the building material markets and in view of the disinclination of the membership to make outlays for other than vital matters, the annex should wait.

Kentucky editors and others are speaking of the "new era" which dawned in the state with the enactment at a special session of the Kentucky Legislature, just adjourned, of a program of tax reform legislation. Under the new laws the state changes from the general property tax system to a system of classification of property, the state tax rate is reduced from fifty-five cents to forty cents, and a tax commission is authorized to supervise the statutes. What is probably the most important feature



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Steam Shovels, Dredges, Draglines and Kindred Machinery

"LET'S dig our clay out of this 35-foot bank at *one* cut instead of making a two-bench job of it; and let's dig it fast enough so the plant will always have plenty of stuff to work on," said the Bach Brick Company of Chicago. So they bought a "Marion" Model 212, which slices up

Clear to the Top of a 35-Foot Bank, Filling a 2-Yard Car at Each Swing

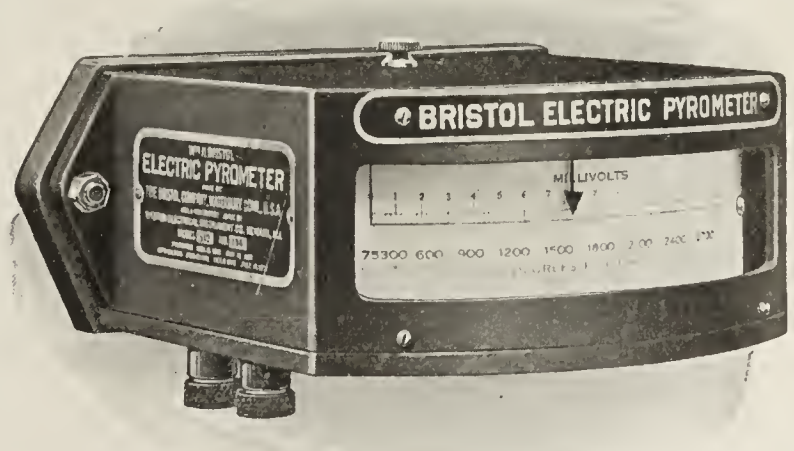
and keeping the big plant supplied "without half trying."

"Marion" is *really* "The Clayworker's Shovel"—it helps boost production and hold down costs in a practical way, and it's always ready for work—*lots* of it. Ask us for facts that will help *your* business—no obligation to you.

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Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

BRISTOL'S ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

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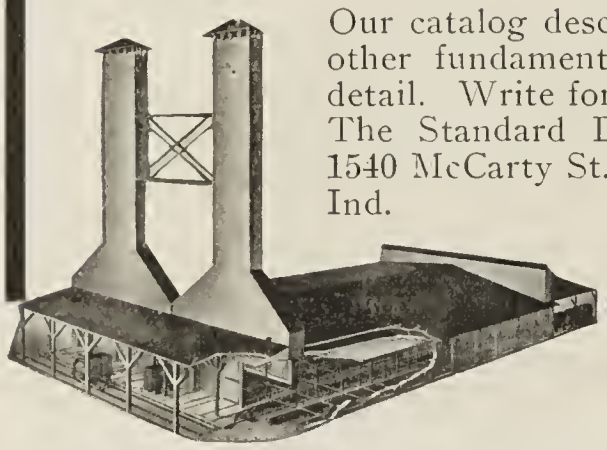
SAY "I SAW IT IN" BRICK AND CLAY RECORD

CONTROL

is the vital test of any brick-drying system. And right there is the reason why **all natures** of clays "look alike" to

The Standard Brick Drier

Control of the drying elements is absolute—yet very simple. So simple that any one man around the plant can give The Standard Drier all the attention it needs.



Our catalog describes this and other fundamental features in detail. Write for it. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Isn't it strange that You haven't a Beighlee?

Wonder if you realize that in construction and operation, it is one of the most beautiful instruments that you ever laid your eyes on?

Have you investigated it, asked any questions, read the catalog?—don't you know that you ought to know all about it.

We've sold to high class plants because of merit—for these plants want resuits.

No pyrometer is quite so good as the Beighlee.

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Better ware at a lower cost, it can be done. Ask how.

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HERMAN A. HOLZ,
Hudson Terminal Bldg., New York
Representative in New England State

of the new legislation from the industrial point of view is that machinery in manufacturing plants, together with raw materials and products in the course of manufacture, are exempted from local taxation. It is confidently expected that the new tax laws will accelerate the industrial development of the state.

Maine

The Bangor (Me.) Brick and Construction Company has elected the following officers for the ensuing year: president, Horace Purinton, of Waterville; manager, H. W. Kierstead, of Bangor, and treasurer, C. M. Daggett, of Bangor.

The question whether the city can legally guarantee a uniform tax assessment for seven years to come on the so-called Hawkes brickyard property on Stroudwater Street, Westbrook, Me., is being thrashed out by the officials of that city. Baird and Peters, of St. John, N. B., have offered to take over the property and invest from $25,000 to $30,000 in improving it, giving steady work to thirty or forty men, provided the city would agree not to advance the present taxable valuation, about $5,000, for seven years. The brick yard has not been operated for some years.

Maryland

J. W. Galloway, of Baltimore, Md., was re-elected president of the Maryland Coal Company, of Lonaconing, Md., at a recent meeting of the stockholders of that company. After the meeting had adjourned the members present made an inspection trip thru the large new clay products plant being erected by the company at Lonaconing. The plant is rapidly nearing completion, and when finished will have a capacity of fifty thousand fire brick daily. Enameled brick, hollow tile, conduits and sewer pipe are also to be manufactured at the new plant.

Massachusetts

The city of Lawrence, Mass., has awarded a contract for 50,000 brick to Theberge Brothers, of that city.

Michigan

Operations for the season have started at the plant of the Schall Brick Company, Clio, Mich. Last year the output of the plant was around three million brick, but this year the number will be greatly increased, according to Leonard J. and Charles E. Scholl, the proprietors of the company.

A new company was recently incorporated with a capital of $40,000, under the name of the Sparta (Mich.) Clay Works, and has purchased 13½ acres of land, containing favorable deposits of clay, and a plant which it will place in operation at an early date. The officers of the new company are: F. D. Pease, president; Enock Armock, vice-president; F. A. Wheeler, secretary, and C. A. Johnson, treasurer, all of Sparta.

Nebraska

The West Point (Neb.) Brick and Tile Company has been organized and incorporated for the purpose of developing extensive clay deposits lying north of that city. At the incorporation meeting, the following officers were elected: W. T. Neligh, president; A. L Krause, vice-president; Henry Bauman, treasurer, and E. Bonseggern, secretary. The following were elected as directors of the new company: Messrs. Neligh, Krause, Bauman, C. F. Paule, and Herman Zeplin.



New Jersey

The Oschwald Brick Company, of Clifford, N. J., recently placed its new plant in operation, manufacturing stiff-mud and dry-press brick. The plant is modern in every respect and is equipped to manufacture 100,000 common brick and 60,000 face brick daily. A gasoline locomotive has been purchased and four permanent updraft kilns, each with a capacity of 600,000 brick, have been constructed.

A new common brick plant, with a capacity of thirty thousand a day, has been complete at Kinkora, N. J., by the Indiana Brick Company, of Trenton. In equipping the new plant, the machinery from another of the company's plants was transferred to Kinkora. Updraft kilns have been built. Exhaust steam dryers have been installed at all three of the company's plants, to permit operation thruout the year. In all, about fifty thousand dollars have been spent on improvements.

Lack of labor is the big complaint of the brick manufacturers in New Jersey, and is threatening to burst the bubble of prosperity that is rapidly swelling as the season advances. Brick manufacturers in this state are entering upon what promises to be the best season they have seen for years—provided the necessary labor can be obtained at a cost that will not be prohibitive. Colored workmen are continually arriving from the South, but it is doubtful if the supply will be sufficient to fill the gap left in the ranks of Eastern labor by the munitions plants.

Hackensack (N. J.) brick yards are quoting a price of $10 a thousand, at the yards, for all brick available, and, according to present predictions, there is no decline from this level apparent in the near future. At Newark, N. J., the price was temporarily driven up to $11 a thousand, but has receded to $10, altho a slightly higher figure is quoted on small lots. The number of brick stored is far less than usual, and building requirements are rapidly absorbing the available supply. It is predicted that the newly burned brick will not be given a chance to cool before they are taken from the kilns and rushed to the building centers in the state.

New York

The New York Kaolin Manufacturing Company has been incorporated with a capital of $50,000, to manufacture clay products. William C. Ungerer, R. A. Barton, and James A. Trimble are the incorporators of the new concern.

Ohio

The Cleveland (Ohio) Builders' Supply Company has been awarded the face brick contract for the new nine-story building being erected for the William Edwards Company at Cleveland.

Plant No. 1 of the Nelsonville Brick Company, located at Nelsonville, Ohio, has been turned into a fireproofing factory. The plant is working to capacity, as there is a good demand in Ohio territory for this material.

The Portage Brick Company has been incorporated at South Bend, Ohio, with a capital of $80,000, to manufacture brick. The directors of the new company are H. M. Kauffmann, G. A. Elliott and E. A. Morse.

The McGrew Coal and Clay Company has been incorporated at St. Clairsville, Ohio, with a capital of $10,000. The incorporators of the new concern are John H. Mc-

There is no real, good reason why

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should not predominate on the ordinary clay plant.

When you dump this type of car the lock is released and the "bottom falls out," every bit of the load drops. There is no swaying, rocking, hammering operation that destroys not only the car itself, making it wobbly and battered, but also destroys the elevated track structure, besides being dangerous to the operator.

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The Youngstown Steel Car Co.
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Your Fortune For Coal Or Use Canton Shaking Kiln Grates Which?

One of the very prominent refractory men says: "It is simply beyond my comprehension why otherwise good plants still use old methods. We are saving over 25% of our fuel with Cantons, amounting to thousands of dollars each season.

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(Solid Woven Cotton Belt)

is the kind of belt that gets the preference from those clay-products manufacturers who are most particular about knowing the exact cost of operation in every detail.

"Scandinavia" always shows up so well when the manager looks over the cost figures that there never is any question as to the belt that will always have the preference.

"Sandinavia" is the belt for you to use for power transmission—elevating and conveying.

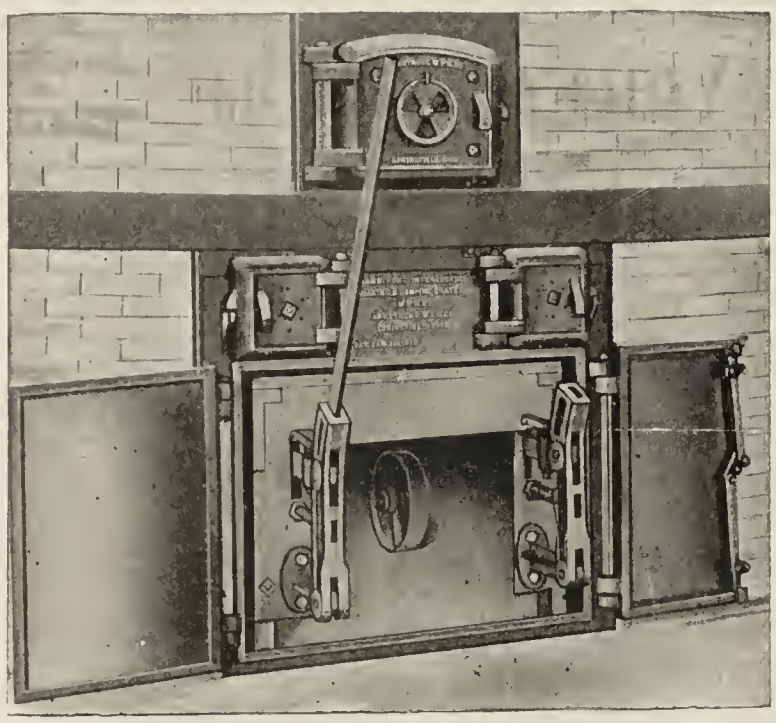
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Branches: Atlanta, Boston, Buffalo, Chicago, Cleveland, Easton, Pa., Pittsburgh, San Francisco, Los Angeles, Portland, Ore.

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Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

Grew, Walter E. McGrew, Wilbur W. McGrew, Elmer O. McGrew, and John C. Nichols.

The Nelsonville Brick Company, which manufactures paving brick and fireproofing, and which maintains headquarters at Columbus, Ohio, has not filled yet the vacancy in its sales force caused by the resignation of W. H. Lucktinberg, but the work will be looked after by Charles H. Frank and M. M. Morrow.

In order to provide for extensions and improvements, the authorized capital of the Hallwood Brick and Tile Company, of Columbus, Ohio, has been increased from $16,000 to $100,000. This concern is a comparatively new member of the Columbus clayworking fraternity and is headed by H. S. Hallwood. The company's plant is located just north of Columbus and makes hollow tile.

Another increase in the price of paving brick has been announced by the Metropolitan Paving Brick Company, of Canton, Ohio, which recently absorbed the brick business of the Bessemer Limestone Company, of Youngstown, Ohio. This time the level was raised from nineteen to twenty-three dollars a thousand. The rapid advance in the price of coal and labor are particularly responsible for the new increase.

The plant of the Ohio State Brick and Stone Company, located at Shawnee, Ohio, which was formerly the Shawnee Flash Brick Company, is being operated with a full force. The products manufactured are face and fire brick. C. B. Young is the general manager. The plant, after being idle for more than a year under a receivership, was completely overhauled and new machinery was installed.

The office committee of the Ohio Paving Brick Manufacturers' Association, consisting of J. L. Murphy, of the Hocking Valley Brick Company; Charles J. Deckman, of the Medal Paving Brick Company, and C. C. Blair, of the Metropolitan Paving Brick Company, met in Columbus at the office of the commissioner, J. R. Marker, on May 4. Considerable routine business came before the meeting.

Some of the fire brick interests in southern Ohio have advised their Pittsburgh representatives that they cannot undertake any heavy orders as they are loaded up with business for the next six months. Inquiries were sent out recently to bid on several blast furnace linings but it would appear that fire brick for such purposes cannot be had for anything like early future delivery. A furnace lining usually calls for about 1,500,000 brick of various shapes and sizes.

Paving, both by the state and municipalities, is not as brisk as formerly in Ohio. This condition is due entirely to the uncertainties of war. Many paving projects have been worked up to the point where bids are being asked, but bidders are not anxious to give figures. Labor conditions are uncertain and contractors are unwilling to make bids when the labor market is so unsettled. Some contracts are being let, however, and there is a fair outlook for the future.

The Claycraft Brick Company, of Columbus, Ohio, has just closed an order to furnish 215,000 rough textured brick for the new hospital building to be constructed at Lima. This makes the third large contract secured by the Claycraft Brick Company in that city, it having previously sold 125,000 face brick for the high school building, and 100,000 for the Y. M. C. A. building. The company reports a good demand for face brick and has announced advances



of from $2 to $3 a thousand to become effective May 1. The car situation is still bad, altho shipments are not held up as long as formerly.

Ohio manufacturers of brick and other clay products are still experiencing much difficulty in shipping their products. The car situation has not improved to any extent and, in fact, some of the manufacturers and jobbers say it is getting worse instead of better. The efforts of railroad traffic officials to have their cars returned have not met with great success. Embargoes are still announced from time to time which affect specific points temporarily. Detroit is hard to reach and several embargoes are still in effect. Buffalo is another point to which shipments are slow. Orders booked by makers of face brick in Ohio are now sufficient to tax the shipping facilities of railroads for the entire year, unless an improvement in shipping facilities develops. Many of the plants have sufficient stock on hand to take care of business for from three to four months and even longer, unless shipping is increased.

Oregon

According to Charles P. Oudin, president and general manager of the American Fire Brick Company, Portland, Oregon, the working force of the company's plant, located at Mica, Wash., has been increased to one hundred men. The plant has been in operation all winter, during which time forty men were employed. The company now has orders on its books sufficient to keep it busy until August 1.

Pennsylvania

The New Berlinville (Pa.) Brick Works, operated by S. G. Landis, has resumed work for the summer and manufactured, during the first week, 50,000 brick.

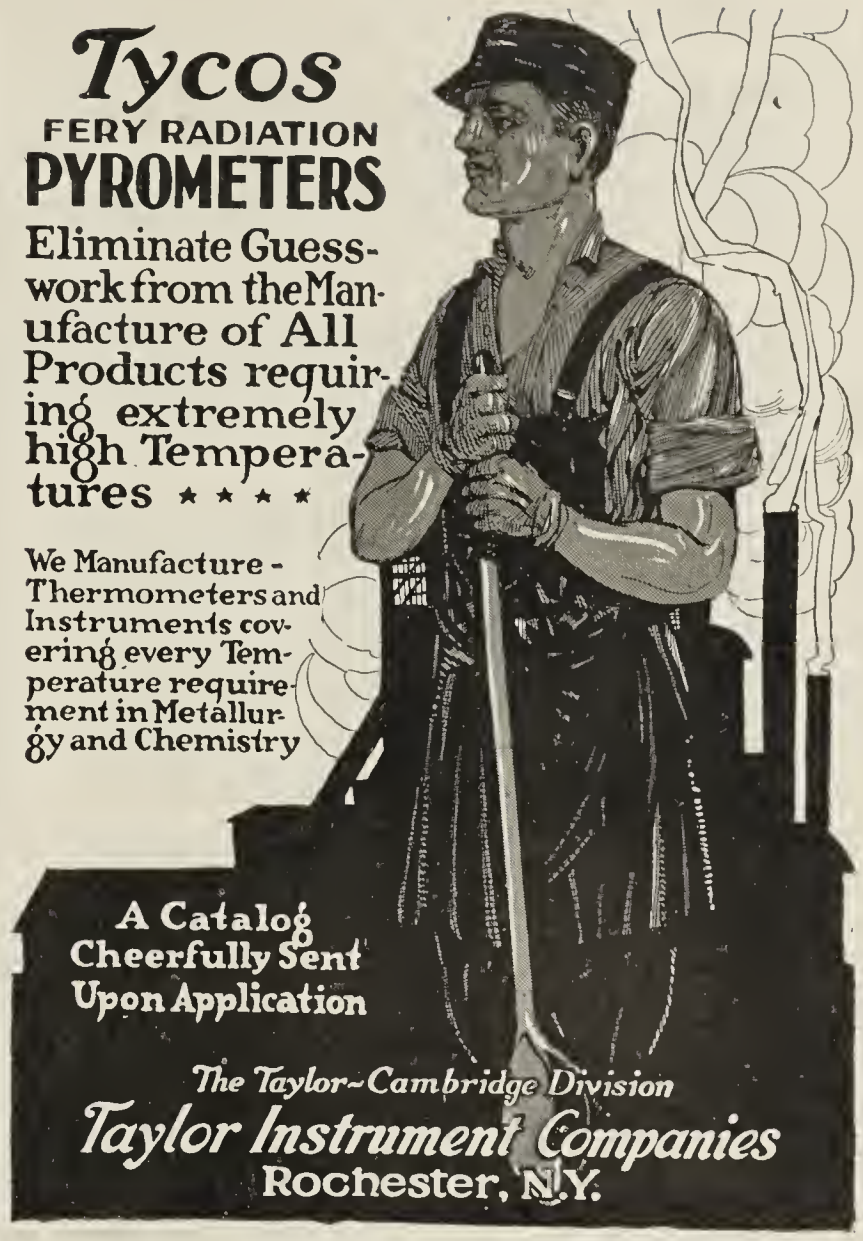
A contract for a large number of paving brick was recently awarded to the Clydesdale Brick Company, of Ellwood City, Pa., by the city council of Sharon, Pa. According to the terms of the contract, the company must deliver at least fifty thousand brick a week.

Plans for a million-dollar brick hotel to be constructed in the near future at Harrisburg, Pa., are now being prepared by W. L. Stoddard, a New York architect. The building is to be ten or twelve stories high and will be erected for the Harrisburg Hotel Company.

The Interstate Commerce Commission has suspended, until November 1, the operation of certain schedules appearing in I. C. C. tariffs of the Pennsylvania Railroad. The suspended schedules name increased rates on hollow building tile in carload shipments from Brookville, Pa., to Ithaca, N. Y.

James M. Ester, of Tarentum, Pa., has been appointed receiver of the Freeport (Pa.) Clay Products and Mineral Company, which was placed in receivership following a bill of complaint filed by the Freeport Planing Mill Company. The interested parties of this company admit an indebtedness of $225,000, exclusive of interest and costs.

It is said that the Beaver Clay Manufacturing Company, of New Galilee, Pa., intends placing a common red brick on the market in addition to a line of special shaped fire brick. The latter will include arches, splits, and wedge brick which will be made from the company's own clays. This company has experienced a great demand for its rough-textured brick and looks forward to a big business for its common red brick.



YOU CAN'T DO THIS

You can't get the kilns unloaded on time—You can't prevent the accumulation of demurrage on cars—You can't have satisfied hustling wheelers—

Unless You Have a Fleet of Invincibles

These wheelbarrows are perfectly balanced; when the load is on and the handles are lifted at least 90% of the weight is on the axle, the other 10% is on the hands, just enough to steady the wheeler. The axle is under the load, not at one end of it.

The Toronto Foundry and Machine Co.

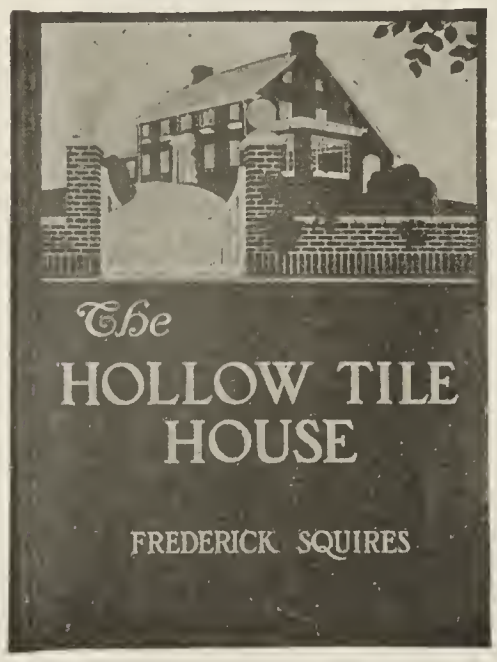
Toronto, Ohio



The barrow slides if you want it to. The hind legs do not rip and catch on obstructions.



If you make, sell or use Burned Clay Fireproofing



You Need This Book

THE HOLLOW TILE HOUSE

by Frederick Squires

is brim full of valuable information and good reading matter on this new field of hollow tile in residential construction, its history, how the tile is laid up, cost data and a host of other interesting subjects, all of which is skilfully woven by the author into a very fascinating story. A large number of illustrations give the reader an idea of the architectural beauties and possibilities of the hollow tile house. It will be time well invested to read this book.

ORDER A COPY NOW.

PRICE $2.50

Book Department

Brick and Clay Record

CHICAGO

Work is now being carried on at the site of the Lehigh Brick Company, in Salisbury Township, Lehigh County, between Allentown and Mountainville, Pa. It is expected the new plant will be placed in operation by mid-summer. The owners of the plant, Colonel H. C. Trexler and George K. Mosser, of Allentown, will spend a quarter million dollars on this new enterprise. The clay pits are now being opened nearby and the first shipment of machinery for the new plant has been received.

Plans have been perfected by the Lebanon (Pa.) chamber of commerce for the erection of one hundred dwelling houses to meet a demand for homes for workmen. Thirty of these houses are to be offered to the workmen at $2,100 each. Charles Oscar Bressler has been selected chairman of a committee which has the plans in hand, and $25,000 has been paid into the corporation to insure the beginning of work on the houses at once. These building operations will mean the use of millions of brick.

Tobias and Sharadin, of Hamburg, Berks County, Pa., have started their brick plant at West Hamburg, which they will operate at its fullest capacity all summer. It is one of the oldest brick plants in the county and the firm anticipates a busy season on account of extensive building operations in their town. They have sold all of last year's output. The town's only other brick plant—the Hamburg Vitrified Brick Company—has been idle for several years and will hardly resume operations this season.

John H. Bieber recently purchased the plant of the Kutztown (Berks County, Pa.) Brick Company from William F. Stimmel. Mr. Bieber operated the plant two years ago quite successfully. Brick are now to be manufactured at this point thruout the entire year, according to Mr. Bieber, altho formerly the plant was operated only during the summer months. The brick yard is one of the best of the smaller plants in Berks County, being equipped with steam dryers and modern machinery. Its supply of clay is abundant and of a good quality. Mr. Bieber was a former school teacher in the Birdsboro High School and resigned his position to resume the manufacturing work.

Rhode Island

Firemen were called out on the afternoon of April 22 to extinguish a blaze that started on brush land owned by the Barrington (R. I.) Steam Brick Company. The flames had gained considerable headway and it was with difficulty that they were prevented from spreading to nearby dwelling houses and to the buildings of the brick plant.

Tennessee

The Hermitage Brick and Tile Company, of Nashville, Tenn., has applied for a charter. The authorized capital stock is $35,000, and the incorporators are E. T. Lewis, L. T. Lewis, O. H. Looney, J. B. Harlin, and James Kerr.

W. G. Bush and Company, well known brick and tile manufacturers of Nashville, Tenn., have incorporated with a capital stock of $150,000. Incorporators are W. B. Herbert, R. D. Herbert, Thomas L. Herbert, Jr., F. W. Wheeler, and W. H. Morrison.

According to a letter received from A. B. Adam, of the Key-James Brick Company, Chattanooga, Tenn., all the brick factories and yards located in that vicinity are now enjoying great prosperity, being sold far in advance of their production. This bit of news is especially gratifying when it is remembered that early in March Chattanooga was vis-



ited by a flood which did great damage to the plants utilizing a surface clay in that city and along the Tennessee River. The factory operated by the Key-James Brick Company, which manufactures a shale brick, fortunately escaped the misfortune of many of the other plants and operated continuously thru the flood period. This company is now getting $8.50 a thousand for its common brick and is shipping its "Burlap" texture face brick into fifteen states. The average price of Tennessee commons is now running about $8.00 a thousand.

Texas

The Acme Brick Company, of Ft. Worth, Tex., has increased its capital stock from $150,000 to $200,000.

The Green Press Brick Company was recently incorporated at Ferris, Ellis County, Tex., with a paid-in capital of $30,000.

Virginia

The Chesterfield Brick Company has filed articles of incorporation with the secretary of the state. The new company, which is to be located at Richmond, Va., will have a capital stock of $25,000, and will have for its president and secretary W. P. Forbes and W. G. Hockaday, both of Richmond.

* * *

POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

PORCELAIN COMPANY TO BUILD NEW PLANT

The Imperial Porcelain Company, of Trenton, N. J., is so rushed with orders and cramped for room at the present time that work on a branch factory to be located in Asbury Park, N. J., will begin in about a month, according to an announcement made by the chamber of commerce of the latter city, which sent a committee to visit the Trenton plant, investigate working conditions, inspect the payroll, and to confer with the owners of the Imperial Company on the establishment of the branch pottery. Frederick A. Duggan, part-owner of the Imperial Porcelain Company, is one of the pioneer porcelain manufacturers of America. He was engaged in the pottery industry in Trenton when he conceived the idea of a plant devoted exclusively to the manufacture of porcelain. After launching his enterprise, he received his first big order from a Chicago concern, which called for a large number of porcelain lemon squeezers. Seven kilns are now being operated at the Trenton plant, and four will be built at the Asbury Park plant, altho the layout will be designed to accommodate twelve.

POTTERIES EXPERIENCE DROP IN ORDERS

Some potteries report that there has been a falling off in immediate business. It does not concern them a great deal, because they have all the business they want on their books, but it has caused some of them to speculate as to the cause for the slow-down. The best opinion seems to be that the fact that we are at war might have influenced new business somewhat, but one manufacturer seemed to hit the nail on the head with the suggestion that all kinds of business might be expected to slow down a little until business men were sure the flota-

Producer Gas *for* Brick Burning

Its uniform quality must be assured.

It must be supplied in quantities to meet the varying demands of this particular service.

To insure these results install

The R. D. Wood Gas Producer

A size to suit every requirement.

For the small plant—
The hand poked type.

For large installations—
The mechanically stirred producer.

R. D. Wood & Co.

400 Chestnut Street
Philadelphia, Pa.



The Sand-Lime Brick Buildings of
The Crucible Steel Co.
Syracuse, N. Y.
J. M. French, Architect.
Brick made by Paragon Plaster Co. of Syracuse, N. Y.



Send US a Sample

Box up and send to us one pint of the best sand that is available in commercial quantities in your district, and we will tell you if it is suitable. Or box up one cubic foot of sand, and we will make a complete test, sending you the brick if the test is successful.

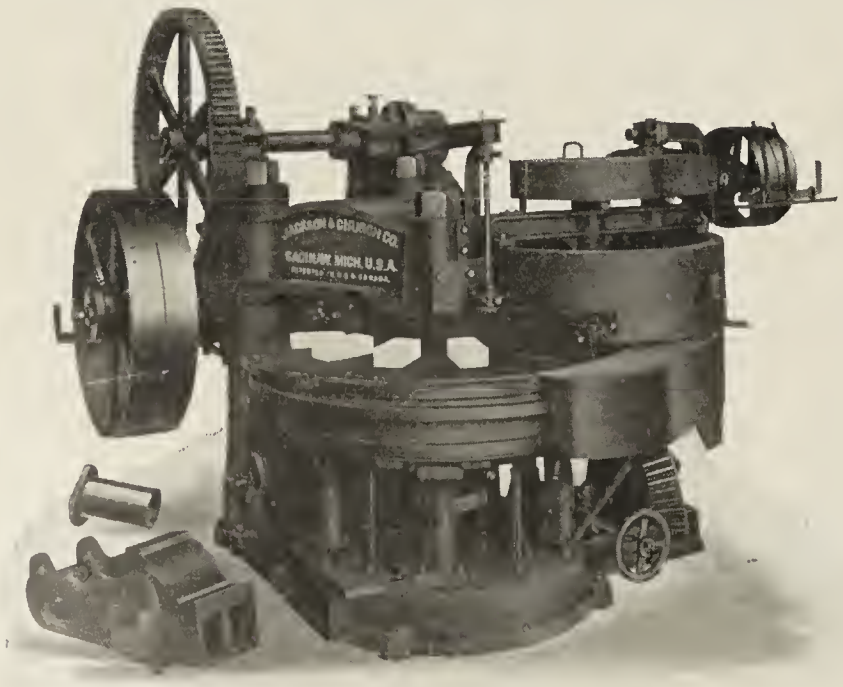
The machine equipment of a Sand-Lime plant is not complex—the process is simple, and in raw materials the constituent parts are 95% sand and 5% hydrated lime.

The Saginaw Process of manufacture may solve your difficulties, or open up a new manufacturing plant for you with all of the possibilities of a coming business.

Let's talk it over.

Jackson & Church Co.

Saginaw **Michigan**



The "Saginaw" Rotary Table Brick Press.

tion of the $7,000,000,000 war loan would not disturb the money market. The manner in which the first $200,000,000 in certificates of indebtedness were taken, however, showed that there was to be no disturbance of any particular moment, and the opinion was expressed that within a week or two orders would continue to come as before.

COAL SHORTAGE CAUSES UNEASINESS

The scarcity of coal is causing some uneasiness in the pottery trade, altho indications are that ample fuel supplies will be obtainable before the summer is over. A leading Pittsburgh coal man said that inasmuch as everybody was trying to buy coal now, stability of price could not be assured until the rush was over. He felt certain the market would then become more steady, and perhaps, by the opening of fall, there would be a chance for overwinter contracts. This, he admitted, was a dangerous proceeding, since it was impossible to forecast the market more than a day or two in advance. Many manufacturing potters have decided not to be caught without fuel as they were when the gas supply was shut off last winter and are searching for a coal supply that will answer their needs.

NEW PRICES HAVE NO EFFECT ON ORDERS

New prices, which have recently been announced in the pottery trade have apparently had little if any influence on business, for orders are as plentiful as ever and the demand for deliveries just as urgent. It was not expected the advance would come before the middle of the summer, if then, as it was generally understood that the larger plants were sold up and there was no necessity for any change. But trade conditions have warranted, and, in fact, demanded certain increases, and they were made. Smaller potteries had made changes some time before these were announced, and some of them have notified the trade of still further advances on certain new goods.

OLDEST POTTERY BURNER RETIRES

John Horwell, seventy-one years of age and the oldest active kiln fireman in the East Liverpool pottery district, has retired from active service after having spent sixty-three years in the same line of business. Mr. Horwell, at the age of eight years, started to learn kiln firing in the potteries in England. He came to this country when a young man, and has been located in the East Liverpool district ever since. He was one of the original stockholders of the old Diamond Pottery at East Liverpool. Later he was financially interested in the Globe Pottery Company of that city. During the past twelve years he has been head burner a the Thompson Pottery Company. Mr .Horwell is now spending a season at Cambridge Springs, Pa.

NEW EXECUTIVE FOR SUMMIT CHINA COMPANY

Announcement has been made by Charles Colburn, of the George H. Bowman Company, Cleveland, Ohio, that W. S. Burford assumed the office management of the Summit China Company May 1. Mr. Burford was for some years manager of the East Liverpool Potteries Company's plant at East Liverpool. He left that company January 1 to go with the Bowman Company at Cleveland. He succeeded Roy A. Colclough at the Akron office.

INTERESTING ITEMS FROM MANY POTTERIES

During the past few weeks there have been several flag-raising celebrations at the plants of New Jersey pottery companies. In Perth Amboy, the C. Pardee Works made a gala event of the raising of "Old Glory," ad-



vertising the ceremony thruout the city by means of some powerful steam whistles. The American Encaustic Tile Company also celebrated the occasion with a great amount of ceremony, as did also the Trent Tile Company, of Trenton.

The scarcity of clay which disturbed the potters several weeks ago has been slightly relieved by the arrival in this country of a considerable quantity of foreign clay and by the improvement in the car supply. Southern clay has been coming into the market for a time, and it is now believed that all danger from that source is past, for the present at least.

The Florentine Pottery Company, Chillicothe, Ohio, has increased its capital stock from $5,000 to $150,000. The company for years was interested in the manufacture of art pottery, but the management now plans to make a line of general ware. It is reported that the Florentine company will erect a new pottery at Cambridge, Ohio, in the near future, plans with this end in view being practically completed.

The annual referendum election of officers of the National Brotherhood of Operative Potters began May 1. All pottery unions vote for the nominees at the first meeting in May. The election will cover a period of about two weeks. President Edward Menge and Secretary-Treasurer John T. Wood, both of East Liverpool, Ohio, are opposed for re-election.

The Richmond (Cal.) Pottery Works has overhauled its kilns and installed a large grinding plant, which also does the grinding for two other plants in Richmond. A large number of advance orders are reported, and the stress of demand has necessitated a substantial increase in the force of the casting and pressing shops.

May 1 was Tuberculosis Donation Day in all potteries in the United States and Canada. Collections were taken up to pay for treatment of members of the National Brotherhood of Operative Potters who are afflicted with the white plague. Some plants made their contributions the last week in April, but the majority took up the collections on the first day of the present month.

L. C. Steiger and M. M. Miner, both formerly connected with the Steiger Pottery Company, of San Francisco, Cal., whose plant was recently destroyed by fire, and M. E. Empena have taken an option on the old Antioch (Cal.) Pottery Works and may place the plant in operation.

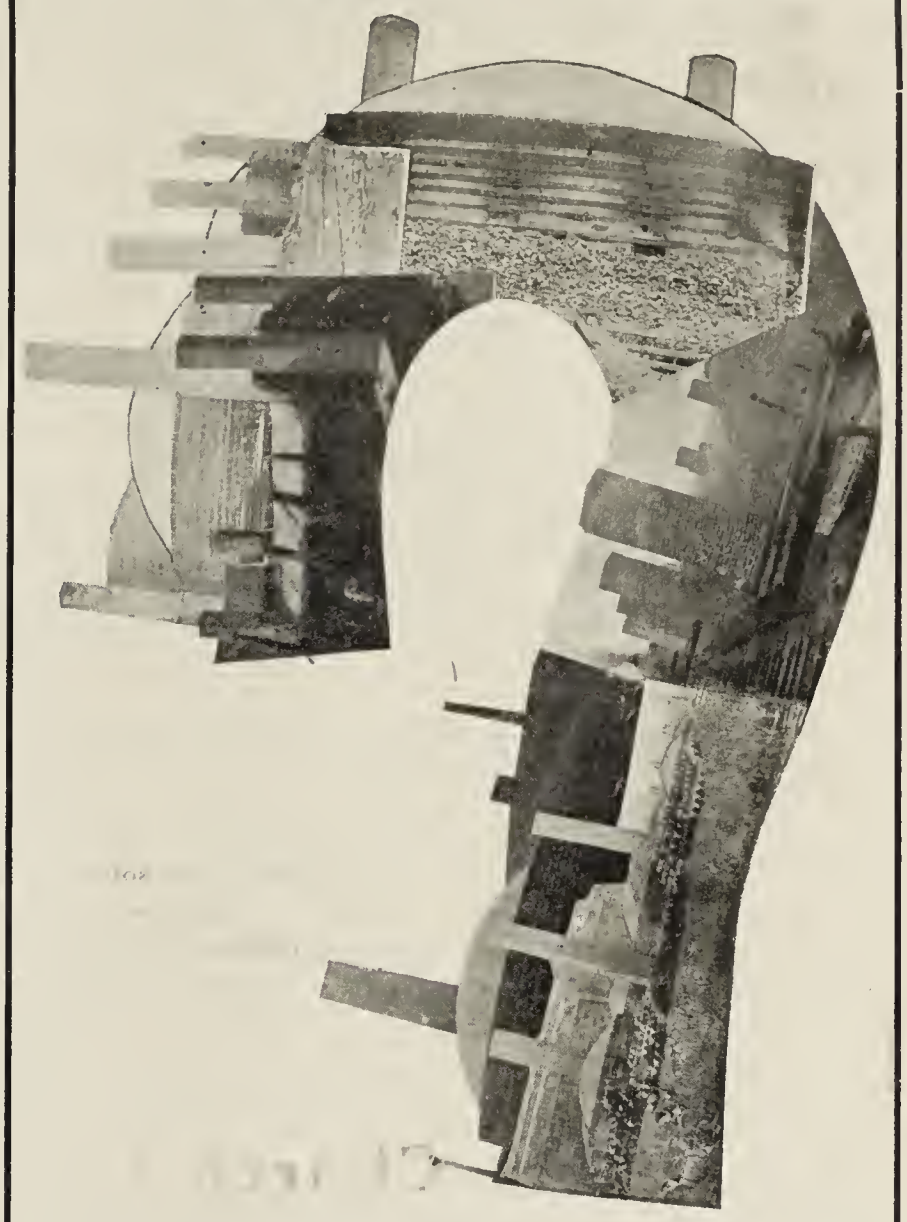
The portion of the Brunt Pottery Company's property, recently acquired by the Hall China Company, of East Liverpool, Ohio, is now being used as a clay shop and gives this well-known company greatly improved facilities for securing a greater production of ware.

Lester B. McNicol, of the Potters Co-operative Company, East Liverpool, Ohio, has been notified to report at Culver Academy for two weeks' further instruction, after which he will be given a commission either as first or second lieutenant. Mr. McNicol is a graduate of Culver.

Charles C. Ashbaugh, secretary, treasurer, and sales manager of the West End Pottery Company, and president of the United States Potters' Association, has been elected chairman of the East Liverpool (Ohio) Chamber of Commerce. He also is a member of the transportation committee of that body.

All repairs have been completed at the Crooksville (Ohio) China Company's pottery and the plant is in first-class shape for continued operations.

IF IT'S A QUESTION OF KILNS— WE CAN ANSWER IT





Equally efficient in round, square or rectangular kilns, single or multiple stack type. New Hook Kilns cost less, as a rule, than kilns of other styles. Old kilns can be changed to our type at comparatively small expense.

Give us number and size of your kilns, kind of ware, burning time and fuel consumption. We will estimate cost of installation and saving that can be effected.

Grate Bars, Bands, Lugs, Ventilators, Castings

HOOK PATENT KILN CO.

High and Spring Streets

COLUMBUS, OHIO



Clay Plant Man Power Must Be Superseded By Machines

This is mandatory. It is caused by the necessity for men, National and Individual. Therefore, it is up to you; if you are to succeed, then ways and means must be devised to not only replace the men who enlist, but also to secure machines that are able to do the work better and cheaper than ever before.

The Automatic Elevating Platform Truck

is a six to a ten men "answer" to your problem.

It is not only "man equivalent" but it is a better way in many ways.

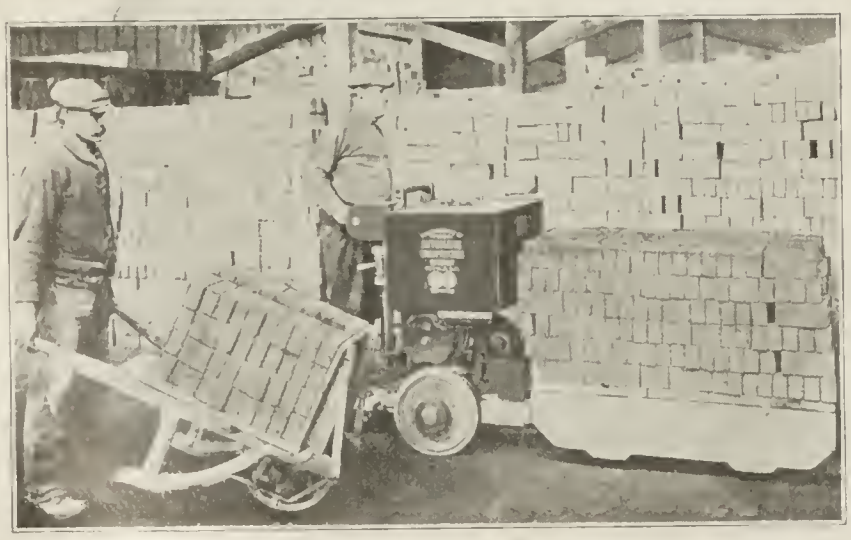
The Ridgeway Brick Co. of Ridgeway, Pa., is saving $16.10 every working day by its new Automatic way of moving brick; a total of $4,830.00 each year. You can do this—in fact, you must do it.

Our engineers will tell you how. What's your address?

The Automatic Transportation Co.

2933-2965 Main St., Buffalo, N. Y.

Pioneer Manufacturers of Electric Storage Battery Trucks, and the only Truck Manufacturers awarded Gold Medal at San Francisco Exposition



STRAWS *that* SHOW *the* WIND

(*Continued from Page* 955.)

fifteen per cent. greater in March than in February, but twenty per cent. less than in March, 1916. New York City permits for March comprised eighty-seven per cent. of the total in the entire state. As compared with February, only two of the cities, Albany and Schenectady, failed to report gains. New York City reported a gain despite a loss in the borough of Manhattan. As compared with March of last year, four cities, Albany, Buffalo, New York City and Yonkers, reported losses.

There is a fair demand for brick in the New York market, Hudson River commons are quoted at $10 and there is a strong disposition to charge from twenty-five to fifty cents more for some of the better grades. A backward spring in the Hudson Valley district has held back the manufacturing plants. "Brick and Clay Record's" New York correspondent, on a visit to Cohoes, Catskill, Hudson, Roundout, Newburg, Kingston and Haverstraw found scores of empty yards and little activity, which is taken to mean that it may be well on into June before new brick find their way to market. Arrivals from the up-river districts are of daily occurrence, however, and in the past fortnight more than one hundred cargoes have been received. Raritan commons are quoted at $10.50 and business is good in the Raritan district. Manufacturers of face brick report increased sales, many inquiries and advancing prices. Second-hand common brick are bringing $10 for a load of 1,500.

* * *

Pittsburgh's building operations for April, including new construction, alterations, and additions, totaled $1,094,100, an increase of $78,650 as compared to April, 1916, and a loss of $120,496 when compared with March of the present year. More repair work is noted for the past few months than for many years past.

* * *

Apparently, Connecticut buyers of brick for building purposes are by no means satisfied with the present outlook. The market is strong, and around New Haven, Conn., the price has been as high as $12, but it is a shade weaker now, and will drop still more when the first burned brick of the season are ready for distribution.

* * *

With all of the brick plants of the Pacific Coast working at full capacity on orders already received, the present slowness resulting from the national situation is not worrying the trade to any extent. There has been a very marked absence of big jobs in the past two weeks, but general building work is heavier than usual. Building permit comparisons for last month show that San Francisco still leads the Pacific Coast cities in the volume of business, altho both Los Angeles and Seattle are putting up a larger number of structures. In March, this city erected 597 buildings at a cost of $2,040,727 as compared with 743 building, costing $1,339,960 for Los Angeles;



755 buildings, costing $583,795, at Seattle, and 288 building, costing $540,672, at Oakland.

* * *

The GENERAL MANAGER GETS HUNG UP *on a* COST FINDING PROBLEM

(*Continued from Page* 953.)

farmer—the garden or common variety, to use an English slang expression. One sells what he can't eat and the other eats what he can't sell. The O. K. company uses a raft of brick which it could not sell, and by putting them in at something near the market price they will turn the emphasis towards quality. They may find then that it costs more to use their own brick than they save by making them."

Barnes grinned. "Do you know what the O. K. people have done? They have decided to close their brick plant and have placed with our man Sellers yesterday an order covering their requirements for the next two months."

"Why that sudden move?"

Snapping his knife shut and sticking the remnant of his pencil in his pocket he said: "They got a new auditor who charged the brick plant with coal from the O. K. mines at market prices and then charged the brick to the coke plant at market prices, and the brick plant showed up so deep in the hole that they decided to bury it and leave it there."

* * *

Brick vs. Concrete Stacks

One of the most important features of an up-to-date steam plant is a properly proportioned modern stack, writes H. F. Ballard in a recent issue of "Building and Real Estate." Such a stack not only adds to the architectural appearance of the plant, but is a paramount factor in its efficiency.

On account of the various conditions which affect the draft requirements in any particular steam plant, an expert should be called upon to determine the size of the stack, which, when correctly designed, is undoubtedly the best and most economical means of producing draft.

There are several different types of stacks, but only two are of sufficient importance to be given consideration here. These are the radial brick and the reinforced concrete.

CONCRETE STACKS NOT STABLE

The reinforced concrete stack is ordinarily so designed that the walls are not stable from their own weight. These walls are reinforced with steel bars which extend into the foundation and thereby anchor the walls to the foundation. It is evident that the stability is entirely dependent upon the adhesion or bond between the concrete and the steel, and if this should become weakened the structure will be in danger of falling.

It has been found that the hot flue gases when constantly in contact with concrete slowly destroy its strength and completely break the bond with the steel. When this occurs the stack then becomes a menace to neighboring life and property.

These difficulties with the reinforced concrete stack may be overcome to a certain extent by lining the stack with fire

GANDY Belts

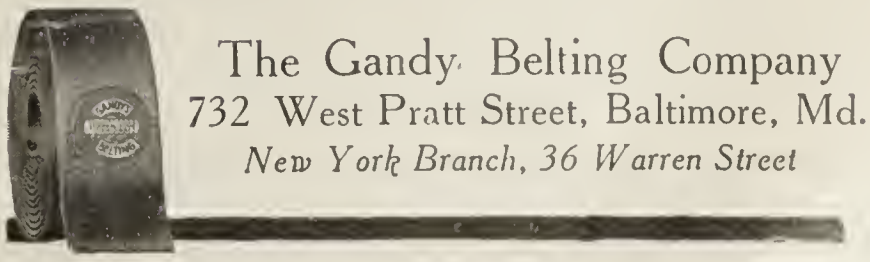
Utilizing the greatest per cent

of available power is a constant problem in factory operation. That's why belting—the power transmission agent—receives so much thought in an analysis of factory overhead.

Buy belting *carefully*. Be sure it will resist water, steam, dirt and grease, that it won't stretch and slip—just when you're on a rush job.

You will be safe if you order Gandy Belting. For nearly 40 years it has retained its prestige, because it is made right. It will continue pliable, will retain its grip with the minimum stretch or slip in the face of unusual exposure.

Quality is built into Gandy Belting. Give yourself the opportunity to prove this.



The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street

SAY "I SAW IT IN" BRICK AND CLAY RECORD

The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

brick for its entire height, thereby protecting the concrete walls from the direct action of the hot flue gases, and by making the walls of the stack heavy enough to be stable by their own weight instead of being dependent upon the uncertain bond between the concrete and steel.

RADIAL BRICK STACK BEST

The radial brick stack is without doubt the best stack in use today. It is so designed that it is dependent upon its weight alone to resist the enormous wind pressure to which a stack may be subjected. It is built of perforated radial brick of various sizes which are manufactured to fit the circle of the chimney. These radial brick are made from a refractory clay especially selected for its heat-resisting qualities and high crushing strength when burned. Each brick is perforated with a series of holes which facilitate a thoro and even burning of the clay. The perforated radial brick are laid up with a cement-lime mortar which penetrates the perforations in the brick and forms a very strong joint. The various sizes of brick permit of a more thoro bonding of the wall than is possible in any other kind of brick work. The walls are further reinforced with concealed steel bands.

The perforations in the brick form a dead air space in the walls of the stack which prevent radiation and thereby retains the heat of the flue gases inside the stack and increases the efficiency.

The radial brick are manufactured in various colors and the stacks can easily be designed to conform to the architectural features of the other units of the plant. Fancy designs or even firm names can easily be built into the stack by the use of various colored brick, thereby furnishing an absolutely permanent advertising feature.

The radial brick stack is very rapidly growing in favor for use in office and hotel buildings, as it takes up a very limited space and does not radiate heat. It is also used extensively in connection with chemical works to carry acid fumes to the upper air currents. It is particularly adapted for this purpose when constructed with special acid resisting brick and mortar.

* * *

"S. O. S." Call for June, 1895, Issue

"Brick and Clay Record" has just received a letter from an old reader, asking for a copy of the June, 1895, issue of "Brick," in which was published an article which he prizes very highly and which he would like to preserve. He has lost his copy and asks us to "dig-up" another one for him. The only copy of this issue which we possess is contained in our bound volume for that year and we are therefore sending out an "S. O. S." call to some of our old readers to get in touch with us if they have a copy of this issue and are willing to part with it. If it is desired to sell the issue, kindly state the price wanted.

* * *

Ashtabula (Ohio) Plant to Operate

It is rumored that the plant of the Ashtabula (Ohio) Brick Company, which was sold recently at a receiver's sale, is soon to be placed in operaton. A crew of men have been at work for several days, placing the plant in condition and making necessary improvements. Two acres and a half of the property which had been flooded have been drained and the water pumped out, and other steps have been taken to prepare the plant for operation.

The plant, it is understood, is to be taken over by an entirely new company. When the transfer of the property is effected, an announcement of the future plans will be made.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

Why Purchase a Motor Truck?

"The only basis upon which horses should be displaced in favor of motor trucks is upon evidence of the economy of the latter," according to F. U. Rosebery, general sales manager of the Service Motor Truck Company, of Wabash, Indiana.

"It is true, of course, that motor trucks justify themselves for other reasons than the fact that they perform a certain function more economically and more efficiently than any other means of transportation. Merchants have bought trucks in order to provide a more reliable and quicker service to their cutomers, thus gaining a commercial advantage.

"Motor trucks have broadened the selling scope of many businesses. Garden truck farmers, for example, have found that motor trucks have paid them in their ability to get their product to market in better condition. In fact, in each industry there are very definite and distinctive reasons for justifying the use of motor trucks in adition to the economy feature.

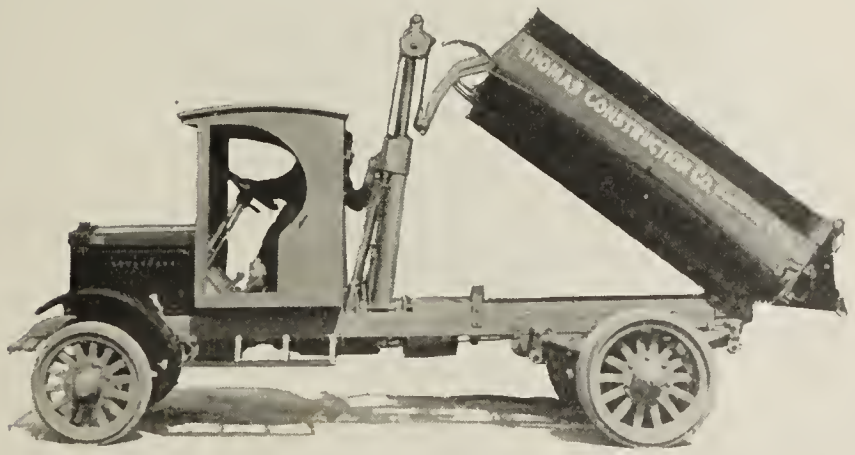
"The essential point in buying motor trucks, however, is to determine upon the type of truck best fitted for the particular hauling problems involved.

"It is prohibitive to attempt to build a special truck for each industry or each business, but it is possible in manufacturing a line of trucks from 1 to 5 ton capacity to accomplish the same general result. It is possible to lengthen the wheel base or shorten it within engineering requirements. Bodies are designed especially to the type of load.

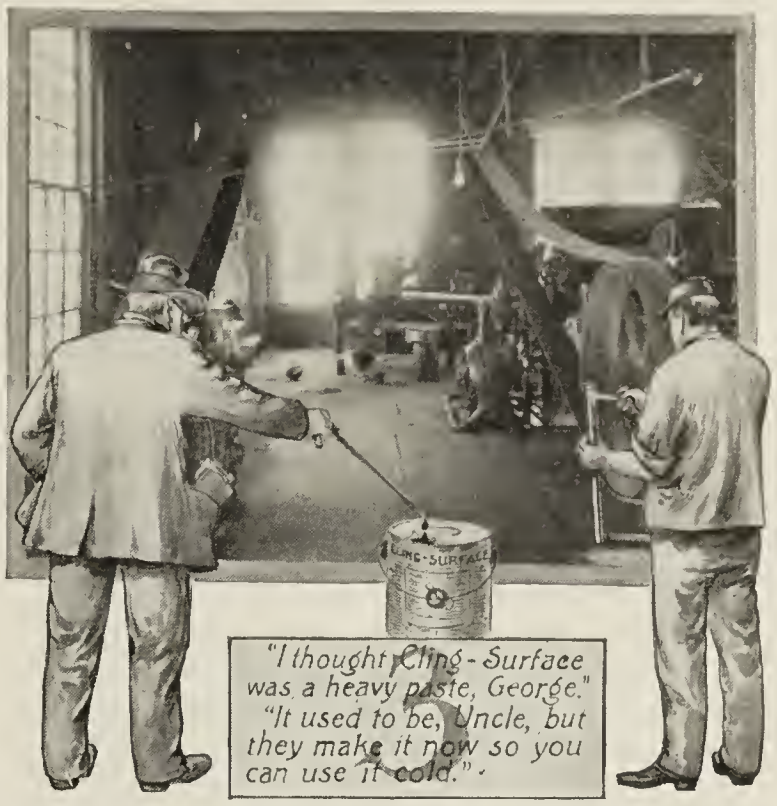
"Service Motor Trucks are in successful operation today in over 253 distinct lines of business. Each Service Truck, irrespective of the line of business in which it is employed, is watched over with special care, not with an eye to whether it will perform—that was proved years ago—but rather with the idea in mind of getting the benfit of each buyer's experience. In this connection we have come in contact with some interesting ideas, originated by shipping clerks and drivers making for easier and quicker loading, and handling of loads.

"In this way we have accumulated valuable data as to the operation of Service Motor Trucks in the clay-products industry, the lumber business, the coal and iron trades, building materials, contractors, textile manufacturers, retailers and in many other lines of business.

"All information which we receive from our field representatives, distributors, dealers and direct from owners, passes through a special department where the data is digested and reconveyed to truck owners, prospective truck users and our own organization.



Service Motor Truck



WE WATCHED them run the big truck out of the yard: smoothly, almost noiselessly, it glided away. And in our minds we contrasted this with the noisy vehicle of ten years ago.

But almost any product can show improvement. Our own particular line has seen this change. The workman who objects to CLING-SURFACE "because it is hard to use" reminds one of the old lady who doesn't like automobiles because "they make so much noise." For the new semi-liquid CLING-SURFACE is perhaps easier to use than any belt dressing you can buy.

Changing it from the heavy paste of twenty years ago to the semi-liquid of today was not a simple problem. Not until 1915 were we ready to place it on sale. The preservative nature of CLING-SURFACE would not permit the use of any solvent, such as gasoline or turpentine. Nothing evaporative could be employed, as CLING-SURFACE must not oxidise, turn rancid or form sediment, for what it does in the open it will do in the belt, and there it should preserve and lubricate the fibres.

So, while twenty years ago it was necessary to heat the CLING-SURFACE, today (in ordinary temperatures) it is used cold.

CLING-SURFACE is applied with a stick, say two feet long by one or two inches wide and half an inch thick, around one end of which is wound and wired a cloth bandage. At no time, therefore, is the operator in danger, for he is able to keep away from all moving parts.

CLING-SURFACE immediately stops the belt slip, and removes any static electricity in the drives. Its continued use means mellow, pliable, waterproof and slip-proof belts, long-lasting and hard-working, saving you in power, oil, belting, coal, trouble, and men's and machines' time an amount annually which makes the price of CLING-SURFACE insignificant.

Ask us for the plan 10,000 firms have found successful. Our co-operation is free and our guarantee means something.

Remember, use CLING-SURFACE and you won't need belt dressings.



CLING-SURFACE CO.

1029 Niagara Street

Buffalo New York U S A

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SAY "I SAW IT IN" BRICK AND CLAY RECORD

Kissel built-in strength

—in frame, axles, springs, brakes, motor and other structural parts—insures continuous performance in the brick and clay business at all times.

This kind of truck performance for owners in the brick and clay business is visible evidence of the Kissel economy and service which KisselKar Trucks will give you.

No matter the amount of work, the length of hauls, the difficulties under which your trucks are loaded, or the condition of the roads, the stamina and wear that have always characterized KisselKar Trucks will enable your haulage department to be always on the job.

There is a KisselKar Truck built in the exact size that will fit your requirements. Let us send you information and data on how they are making good with other brick and clay owners. Send for specifications and photos.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfected worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns.

Five sizes—from the Light Delivery up. Chassis prices $1085 to $3750.

KISSELKAR TRUCKS

"In this way the developments in motor truck hauling, routing, and cost are given to Service Motor Truck owners and in many cases it has resulted in benefits making for lower cost of operation, greater hauling radius, better loads, better drivers, etc.

"The Service Motor Truck Company is one of the oldest manufacturers in the field. Many years ago they adopted the Worm Drive, which principle has in recent years become so generally used.

"There are in the United States today, over 260 motor truck manufacturers. Of these only TEN have achieved so definite a position in the industry that, to use a commercial phrase, they are thoroly intrenched.

"The Service Motor Truck Company is numbered as ONE of these Dominant Ten."

Steele's Represented in the North

Announcement has been made by J. C. Steele & Sons, of Statesville, North Carolina, that the Manufacturers Equipment Company of Dayton, Ohio, have been appointed as their direct selling representatives for the states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Iowa, Minnesota, Pennsylvania, New York, Kentucky and West Virginia. It is to be especially noted that the Manufacturers Equipment Company will not act as dealers or jobbers, but strictly as selling representatives.

For more than thirty years the Steele line has been built at Statesville, which is close to the iron and labor market. They are manufacturing machinery for making both brick and hollow-ware products by stiff-mud process and have gained quite a reputation for their machines particularly their side and end cutters.

New Hill Clutch Publication

The Hill Clutch Company, of Cleveland, Ohio, have issued the first number of "Hill Clutch Equipment," this being the name of the publication devoted to their line which includes friction clutches, rope drives, collar oil bearings and other transmission equipment which has made this company so well known wherever there are manufacturing plants.


HILL CLUTCH EQUIPMENT

THE HILL CLUTCH CO. CLEVELAND, O.

ONE APRIL 1917

An Economical Distribution of Moderate Power.

THE Cleveland GALVANIZING Works Co. So says the letter head, but the visitor to the plant carries away an impression that WORKS should be the capitalized word. Three busy manufacturing floors are harmoniously noisy with double rows of automatic machines making chains of various types and sizes from coils of simple wire. Thousands of yards of wire—cut bent and

Fig. 1. Hill Clutch and Rope Drive from 75 H. P. Gas Engine

Facsimile of new Hill Clutch Publication Issued in April

SAY I SAW IT IN BRICK AND CLAY RECORD

The publication will be sent cheerfully by the Hill Clutch Company without cost to any reader of "Brick and Clay Record" who will send in his name, place of business and position he occupies with his company.

This book will, undoubtedly, be a most valuable aid in helping clay-products manufacturers, as well as others, to solve many of their transmission problems. The first number, issued in April, is especially interesting.

How to Overcome Labor Difficulties

If every plant manager would go out and watch his "wheelers" for a few minutes each day while they are attempting to use an ordinary barrow, and then would have an opportunity to see the same class of labor using a barrow that is scientifically constructed, he would soon see where he could save some money and obviate a lot of labor trouble.

The ordinary barrow is not properly balanced and it is, therefore, a much greater burden on the man who has to use it than is a barrow that is properly balanced. This might seem to be a small point to some, but it is a mighty big factor nevertheless. One of the reasons that some plant managers find it easier to keep their help than others do, is because they look after even little things like this, and give their help the kind of tools that keep them satisfied and at the same time get more work out of them in a given period.

The "Invincible" brick barrow manufactured by the Toronto Foundry and Machine Company, of Toronto, Ohio, is constructed on scientific principles and is perfectly balanced for carrying brick, tile, etc. It is being used on many of the most successful plants in America and once it is installed, no other barrow ever supplants it.

The "Invincible" barrow is built of strictly seasoned white oak, with bent wood runners, cast iron shoes and wrought iron braces thruout. It also has babbitt cast iron bearings made of the popular Toronto babbitt.

The use of this barrow will, undoubtedly, overcome any difficulties you might have in keeping common labor on the plant.

Rubber Company Officials Change

The B. F. Goodrich Company announced recently an important change in the personnel of its officials which brings L. D. Brown, who has been cashier of the First-Second National Bank of Akron, into the office of treasurer, succeeding W. A. Means.

Mr. Means was elected second vice-president of the Goodrich Company at the annual meeting, March fourteenth, and at the same time, Mr. Brown's appointment as treasurer was confirmed.

For almost twenty years Mr. Means has been associated with the Goodrich Company and during that time he has seen it grow from a comparatively small plant with a $2,000,000 capitalization, to the ninety million dollar institution of today, which is rated as the largest of its kind in the world. For the past seven years Mr. Means has occupied the office of treasurer and for twelve years previous to that was assistant treasurer. This experience has qualified Mr. Means for the new responsibilities which the second vice-president is obliged to handle, for it has been during the past twenty years that the rubber business has seen the greatest growth and development.

Another Boon for Federal Truck Users

Greater service to the users of motor trucks is provided in the inauguration by the Federal Truck Company of a new policy which requires dealers to stock repair parts. Hereafter, with a view to giving the utmost in service to owners of Federal trucks, it will be a stipulation in Federal dealers' contracts that a complete assortment of service parts must be carried in stock. This, in effect, will make every Federal dealer and distributor a branch of the factory, and insures the elimination of unnecessary delays in making repairs to motor trucks.

Another feature of the new Federal service policy which will appeal to the owner who strives to get greater efficiency in haulage equipment, is the establishment of all-

The Letter Is Well Worth Reading, Because It Tells a Great Big Story About The

BUCKEYE CLAY DIGGER

Excerpts from the letter of the Claycraft Brick Co.

THE CLAYCRAFT BRICK COMPANY

Groveport, Ohio, 12-11-16.

This digger loads the clay in 1½-yard clay cars. It requires a man to shift these cars back and forward under the belt conveyor. This man looks after the machinery also. and we pay him 22½c per hour. The digger cuts 7 ft. deep and 18 in. wide and with the conveying and all machinery it only pulls 55 Amp. on 220 V. D. C. current, making the actual cost of running and operating the digger very small.

We have loaded 160 cars, or 240 yards, in 10 hours. The digger will actually dig one-half more cars if you had a better method of getting the loaded cars away from the digger and the empty ones back. The lay of our ground prevents us from doing this as it should be done. In the pit it requires a man to gather up any clay that falls to the side, which is very small. We pay him 20c per hour.

The up-keep of this machine is small. The only thing wearing out to any extent being the spades or the cutters that shear the clay off, and the side cutters. Our blacksmith relays these with steel again. It takes only two sets of cutters to run the season.

Respectfully yours,

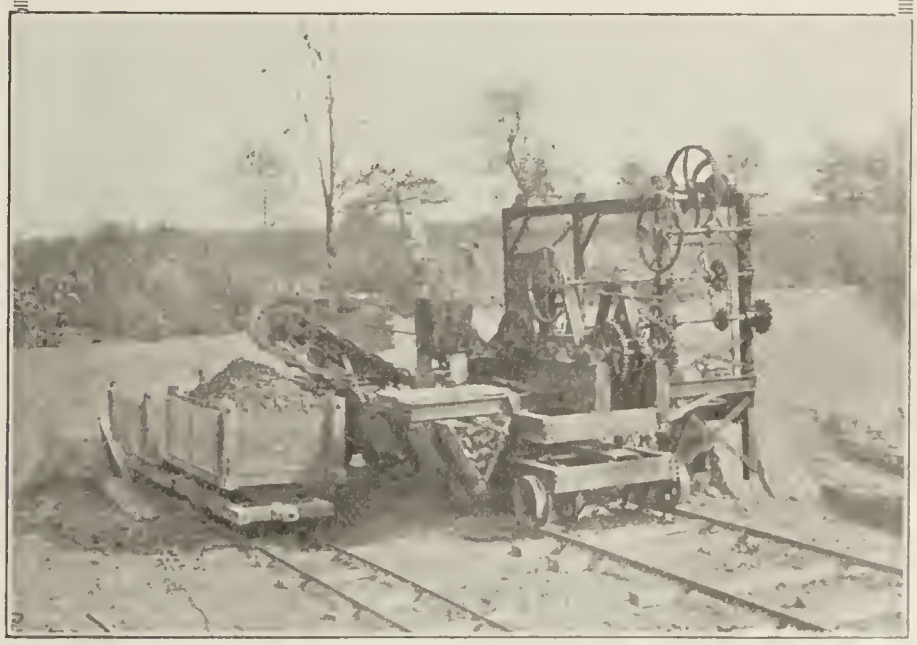
MILO V. HARRISON.
Sup't.

It may suit your conditions perfectly. Describe them to us and state daily yardage desired. We will advise frankly whether we believe that you can profitably use our Clay Digger.

First and second cost estimates are gratifyingly low. Let's get together.

THE BUCKEYE TRACTION DITCHER COMPANY

FINDLAY **OHIO**







The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men— in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.25
Brick Drying (English edition)	1.00
Bricklaying, Rudiments of Practical	.65
Bricklaying System	3.00
Brick Work (Walker)	.65
Brickwork and Masonry	3.00
Building Construction and Superintendence, Part 1, Masons' Work	6.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	5.00
Clay Glazes and Enamels	5.00
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.25
Clay-Working Problems	1.50
Economies in Brickyard Construction and Operation	1.00
Effect of Heat Upon Clays	2.00
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Estimating Frame and Brick Houses	1.00
Garages and Motor Boat Houses	1.00
Glazer's Book	1.00
Hollow Tile House, The	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.50
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.50
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Efflorescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent import duty.

Address, **Book Department,**

Brick and Clay Record

445 Plymouth Court, Chicago, Ill.

night repair shifts in most of the Federal service stations. A motor truck in daily operation that requires adjustments may be run into a service station over night and the next morning it is ready to go into service again without the loss of a minute from the working day.

"This is the first time, so far as I know, that truck dealers have been required to carry repair parts," said J. F. Bowman, director of sales. "Truck users like to keep their units working. It is costly to lay up a truck for several days. Delivery has been so facilitated by the use of trucks that any delay is keenly felt both by owners and their customers.

"This plan of the Federal company will benefit both the owners of trucks and the people with whom they do business. It will speed up business generally, and save heavy expenses caused by delays."

Screening

Practically all plant superintendents realize the importance of getting a sufficient amount of screened clay to keep running to capacity, but few know or fully realize that uniformity in size of grain plays a very important part. This is particularly true for paving brick and fireproofing in the common ware class, and of course it is an absolutely necessary feature of the clay material used for the high-class wares.

Different sizes of material flowing at frequent intervals into the pug mill, derange the efforts of the pugger and produce a constantly varying temper in the pugged material. This variation evidences itself in a dozen ways, later on in the process. A laminated product is more probable, the green ware emerging from the die is not uniform in strength or water content and dryer cracks and checks are probable, or the ware comes wet, simply due to the fact that the dryer is handled the same for both coarse and fine grained pieces of ware.

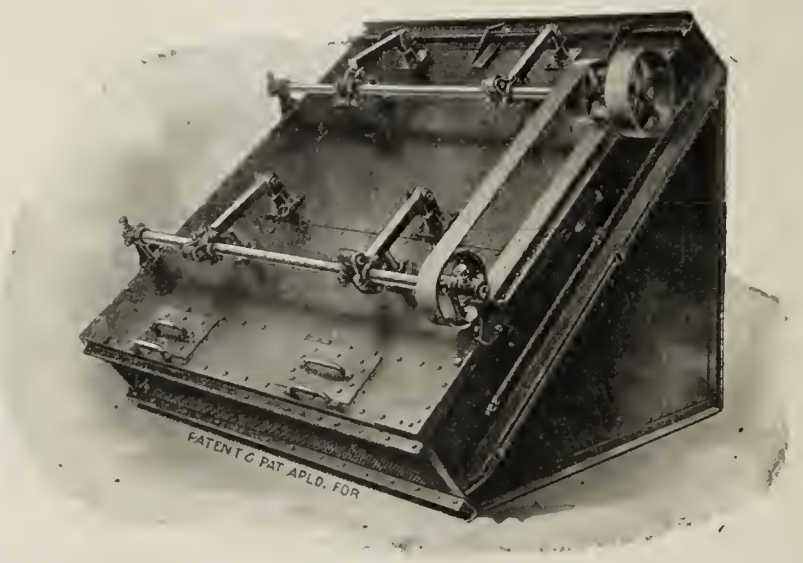
Even in the burning the difficulties are still apparent; immature fluxing or melting and unexpected surface colorings appearing to disturb profitable production.

The usual clay plant screen cannot prevent the occurrence at irregular intervals of a flow of coarse particles, oftentimes undiscovered for hours at a time. Many clay plants have now adopted the Newaygo screen and found it to be a real cure for all screen troubles.

The Newaygo separator screens nearly all dry materials from ½ inch to 180 mesh (32,400 holes to the square inch) and unlike other inclined screens does this work without any shake whatever to the screen box or frame, substituting direct vibration of the reinforced wire cloth and vibration blows which are not destructive.

A good percentage of the best plants in the country are using the Newaygo separator satisfactorily. You may send for a list and for catalogs and see where you can improve upon present screening methods.

The Sturtevant Mill Company of Boston, Mass., have had grinding and screening machinery experience for thirty-four years. "The years bring experience; experience precedes excellence."



The Newaygo Separator Operates by Direct Vibration of the Reinforced Wire Cloth



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Armstrong Mfg. Co.....1064
Automatic Transportation 1080

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The EDITOR'S CORNER

Cars Should Be Loaded to Marked Capacity Plus Ten Per Cent.

ADVICES HAVE COME to the effect that the Special National Defense Committee of the American Railway Association is seriously considering the advisability of requiring brick and other similar material to be loaded to a *minimum* of ten per cent. in excess of marked capacity per car. This figure at present is the maximum.

There is little doubt but that this practice should be followed by every clay products manufacturer in the United States. It is entirely feasible except in certain cases where a definite number of brick or other product are required and more cannot be taken by the purchaser.

The executive committee of the National Industrial Traffic League is planning to hold a special meeting at Washington on May 25, for the purpose of considering the grave transportation problems which have arisen as a result of the war. Fairfax Harrison, chairman of the executive committee of the American Railway Association's Special Committee on National Defense, will be present and lay before the League the plan of the carriers for co-ordinating all of the railways as one system, and the various measures that have been suggested to secure greater efficiency, particularly with reference to car service, also the methods by which the League and shippers generally may co-operate in this movement.

If, as this meeting is being convened, those who are about to consider these transportation problems had the assurance that all clay products manufacturers were loading cars to marked capacity plus ten per cent., then there would be less tendency to issue iron-clad instructions eliminating shipments in cars which are not loaded to maximum capacity.

With the exception of refractories and drain tile, it would be a very difficult task to convince the government that other of the cruder clay products are so-called "war commodities." We know that strenuous efforts are being made to give every preference to such commodities and those of us who are not manufacturing material that is of direct or indirect importance to the successful conduct of our war, are facing a situation in which we may be compelled to smile while taking what is left in the way of transportation facilities.

Therefore, it seems wise for us to issue specific instructions to the proper parties stating that in all cases cars must be loaded to ten per cent. in excess of marked capacity excepting those on which orders call for a specific number of brick or other burned clay material and more cannot be taken. Dealers should be notified that preference will be given to cars which can be loaded to maximum capacity of equipment. In this way, if we are careful to practice thrift in the matter of using transportation equipment, we can reasonably expect that we shall be taken care of in conditions which are beyond our control, that is, when shipping an order in which more than the specified number of brick cannot be taken.

Such action as is recommended above would be a suitable prelude to a positive stand, if this must be made, against the adoption of any measures which might prove a serious handicap in the existing critical period pertaining to the regulated use of cars.

* * *

Roads and the Defense Program

ACTION has just been taken by Congress on the four hundred million dollar ship building program. Nearly everyone is familiar with the seven billion dollar liberty loan, two billion dollars' worth of which is being offered to the American people this year. The activities of Congress with regard to the two billion dollars in taxes which is to be raised this year have all too well impressed themselves upon us. These figures are stupendous and if all of this money is spent in the United States in the period prescribed, it will make for unheard of prosperity and record-breaking business in many lines.

There is one point in this connection which we wish to call to the attention of our readers and that is while money is being appropriated for building ships, submarines, the purchase of arms and ammunition, and the equipping of an army of two million men which it is proposed to raise, nothing is being said about preparedness in road building.

It may be a far cry from fighting on the so-called Von Hindenburg line to the defense of our sea coasts, but if we are going to spend such enormous sums of money for preparedness, why not do the job right and make America safe against an overwhelming attack by the enemy.

Experience in the battle of Verdun has shown conclusively that ordinary types of road not only are insufficient for the needs of modern warfare but are actually a menace to the success of the country's arms. Interesting stories are told by war correspondents of the extraordinary efforts necessary to keep some of the roads on the western front in usable condition, particularly those radiating from Verdun. It seems that a good many of these roads are macadam and the heavy automobile truck traffic grinds them to pieces,

the wind blowing the fragments away as dust. Modern warfare calls for a very extensive use of motor delivery equipment and roads must be designed with this condition in mind.

America's roads are not in anywhere near adequate shape to be sufficient for war-time needs in case of fighting on either seaport nor on our land boundaries. A good many of our main arteries of highway travel are like broken chains—good stretches of road here and there between very bad pieces of pavement. While we are taking lessons from England and France in the matter of military and naval operations, we should certainly heed the experiences of these countries, particularly France, in the matter of roads.

We can do a patriotic duty by creating strong sentiment in favor of an extensive road building campaign in connection with the preparedness program. It takes little argument to show that if such a move were placed under way that paving brick would play a large part in the defense of the nation.

IT'S UP to YOU

I

If you're full of fighting fervor, and you're longing for the chance,
To defend the Nation's honor on the battlefields of France;
If you're seething with devotion, and your "innards" sizz and boil,
As you view the desolation on the European soil;
If you ache to share the burden of your brothers over Sea,
And do your bit to bring the day of world democracy;
The glory of the labor you are doing day by day
Will be posted to your credit when the war clouds clear away.

II

To some will come the honor of the long red firing line,
To be there when the Stars and Stripes are flung across the Rhine,
To some the equal honor, those whom duty calls to serve
And labor in the Nation's great industrial reserve.
Perhaps that's where your country needs your patriotic part,
Where men of brain and power align, with sturdiness of heart;
There's double duty then for you and double work as well,
For industry alone will end that agony of Hell.

III

We've taken up the challenge for the freedom of the world,
To prove the worth of liberty before our flags are furled;
The billions for the burden have been pledged by Uncle Sam,
To build the superstructure of the victory battering ram;
So get your grip with confidence, and keep your features glad,
Then build for better business—only slackers look for bad,
For when the war is over, and the nations start anew,
They'll turn to Uncle Sam and say, "Old boy, it's up to you."

—Frank Adams Mitchell.

"SMOKY CITY" SALESMAN FIRST

Frank T. Hindman of the Martin Brick Co., Pittsburgh; Frank M. Eliot, Hydraulic-Press Brick Co., Washington, burgh, Receive First, Second, Third and Fourth Honors

"I AM STRONGLY TEMPTED to mark this paper 100 per cent. It is splendid and could be distributed thru both the manufacturers and dealers associations to the very great benefit of the business."

It is John H. Black, secretary and treasurer of the Jewettville Brick Co., Buffalo, talking and he is referring to the winning paper in the Sales Ethics Contest, written by Frank T. Hindman of the Martin Brick Co., Pittsburgh. This tribute to the contest from Mr. Black, speaks volumes for the success and value of the move that was started last December at the annual meeting of the American Face Brick Association at French Lick, looking toward a more complete understanding of paragraph four of the Code of Ethics of that organization, namely:

"That this Association condemns the practice of 'knocking' competitor's materials or casting aspersions that may be detrimental to the general face brick business and recommends that its members insist that their employes and selling connections refrain therefrom."

"TIME WELL SPENT" SAYS ONE JUDGE

Mr. Black was chairman of the committee of judges who passed upon the merit of the papers and, therefore, is in a position to know about what he is talking. Further than this, F. C. Aschemeyer, another member of the judges committee and salesmanager of the Hydraulic-Press Brick Company, St. Louis, Mo., says, in a letter following the close of the contest:

"After carefully reading the many papers submitted by the various salesmen, I feel that the effort made by 'Brick and Clay Record' in behalf of the American Face Brick Association's Code of Ethics, has been a gratifying success. It was a pleasure to me to note the enthusiasm and earnestness which the boys put into their papers, and it proves that the practice of 'knocking' can be successfully eliminated to the mutual advantage of all.

"Personally, I feel that the time spent in reading these papers has been one of the best investments I have ever made; and the general results will be a better understanding of the Code.

"The salesmen are to be congratulated on the capable manner in which they presented their thoughts and ideas, and I believe, altho impossible to award each contestant the honor, they may rightfully feel they have done a duty which we all owe to the brick interests."

Writing on the same subject, Archie S. Reid of Newark, another of the judges, says:

"Acting as one of the judges in your recent Sales Ethics Contest I found required considerable time, but I felt amply repaid by the information derived from careful study of these papers. In reviewing the several papers, one is impressed with the apparently sincere desire on the part of the competing salesmen to live up to the highest standards of business ethics. Even in a few cases where the competitor was content to review a personal experience rather than discuss the matter from a general viewpoint, there seemed to be a well grounded impression in the minds of brick salesmen at large that 'knocking' does not pay.

"I believe the publishing of these papers will tend toward a better condition in the business, and therefore feel that the face brick industry of the country owes a vote of thanks not only to every man who submitted a paper, but to 'Brick and Clay Record' for suggesting and carrying thru the competition."



FIRST PRIZE

Frank T. Hindman, Martin Brick Company, Pittsburgh, Pa. Mr. Hindman's Paper Appears on Page 1036 of This Issue.



SECOND PRIZE

Arthur S. Fielding, Hydraulic - Press Brick Company, Chicago. Mr. Fielding's Paper Will Be Published in the June 5 Issue.

THE WINNERS

More than fifty salesmen had indicated their intention to submit a paper in this contest, following the initial announcement contained in the February 13, 1917, issue of "Brick and Clay Record." Of this number exactly thirty made good on their word, providing the judges with plenty of material from which to choose the winners and incidentally sufficient work to keep them busy for a few days.

The judges were unanimous in their decision that the first prize should go to No. 18, who proved to be Frank T. Hindman of the Martin Brick Co., Pittsburgh, Pa., all giving him the same grade, that is, 98. The second prize was awarded Arthur S. Fielding of the Chicago office of the Hydraulic-Press Brick Co.; the third prize to Frank M. Eliot of the Washington (D. C.) office of the Hydraulic-Press Brick Co., and Charles R. Porter of Gloninger and Co., Pittsburgh, was

in SALES ETHICS COMPETITION

Arthur S. Fielding, Hydraulic-Press Brick Co., Chicago; D. C., and Charles R. Porter, Gloninger and Co., Pitts- Respectively in Inspiring and Successful Face Brick Contest

given the fourth prize. In accordance with the conditions of the contest, Mr. Hindman receives a check for $50 from "Brick and Clay Record," and Messrs. Fielding, Eliot and Porter, $25, $15 and $10 respectively.

There were six papers all told which were given a grade of 90 or over. Inasmuch as two of these lost out on the prizes, it was decided by the Editor that these be given honorable mention, therefore, we are glad to say that A. V. Smith, of the Streator (Ill.) Brick Co., and Bernard W. Figgins, of the Baltimore (Md.) office of the Hydraulic-Press Brick Co., were the successful contestants for this honor, having submitted papers of high excellence and great value. Incidentally, Mr. Figgins is doing his "bit" in the United States Navy, having been called to his post in the First Battalion, Maryland Naval Militia, since submitting this paper to us. He is now "somewhere on the Atlantic Coast."

Feeling that all those who submitted papers in this contest, having put considerable time and energy in on their contribution, and doing this with a spirit that can be characterized as both generous and progressive, should be given some mention, we are listing below the other twenty-four who did not receive either a prize or honorable mention but who deserve some credit for their cooperation.

Robert H. Simpson, Hydraulic-Press Brick Co., Washington, D. C.

R. E. Ruhle, Fiske & Company, Syracuse, N. Y.

James H. Ward, Jr., A. S. Reid & Co., Newark, N. J.

H. F. Williams, Hydraulic-Press Brick Co., St. Louis, Mo.

John J. Bishop, Memphis, Tenn.

Chas. P. Tiley, McEwing & Thomas Clay Products Co., St. Louis, Mo.

R. Massie Nolting, Richmond, Va.

Edwin R. Goodman, Des Moines Clay Co., Des Moines, Ia.

F. M. Smallridge, Detroit, Mich.

Jos. P. Sullivan, Wisconsin Lime & Cement Co., Chicago.

Gordon Ames, Sunderland Bros. Co., Omaha, Nebr.

L. L. Charlton, Hydraulic-Press Brick Co., St. Louis, Mo.

Claude Filer, Colonial Brick Co., Detroit, Mich.

P. E. Peterson, Thomas Moulding Brick Co., Chicago, Ill.

A. F. Crawford, Lincoln, Nebr.

Harry Podolsky, Bonner & Marshall, Chicago, Ill.

E. H. Cobb, Hydraulic-Press Brick Co., Minneapolis, Minn.

Otto C. Bauer, Hydraulic-Press Brick Co., Minneapolis, Minn.

Edward T. Conley, Bradford Pressed Brick Co., Bradford, Pa.

T. B. Amiss, Jr., Hydraulic-Press Brick Co., Washington, D. C.

C. I. Pohlson, Hydraulic-Press Brick Co., Minneapolis, Minn.

Chas. A. Noll, Reliance Brick Co., Wichita, Kas.

S. Hartley Wheatley, St. Louis, Mo.

W. A. Mills, Washington, D. C.

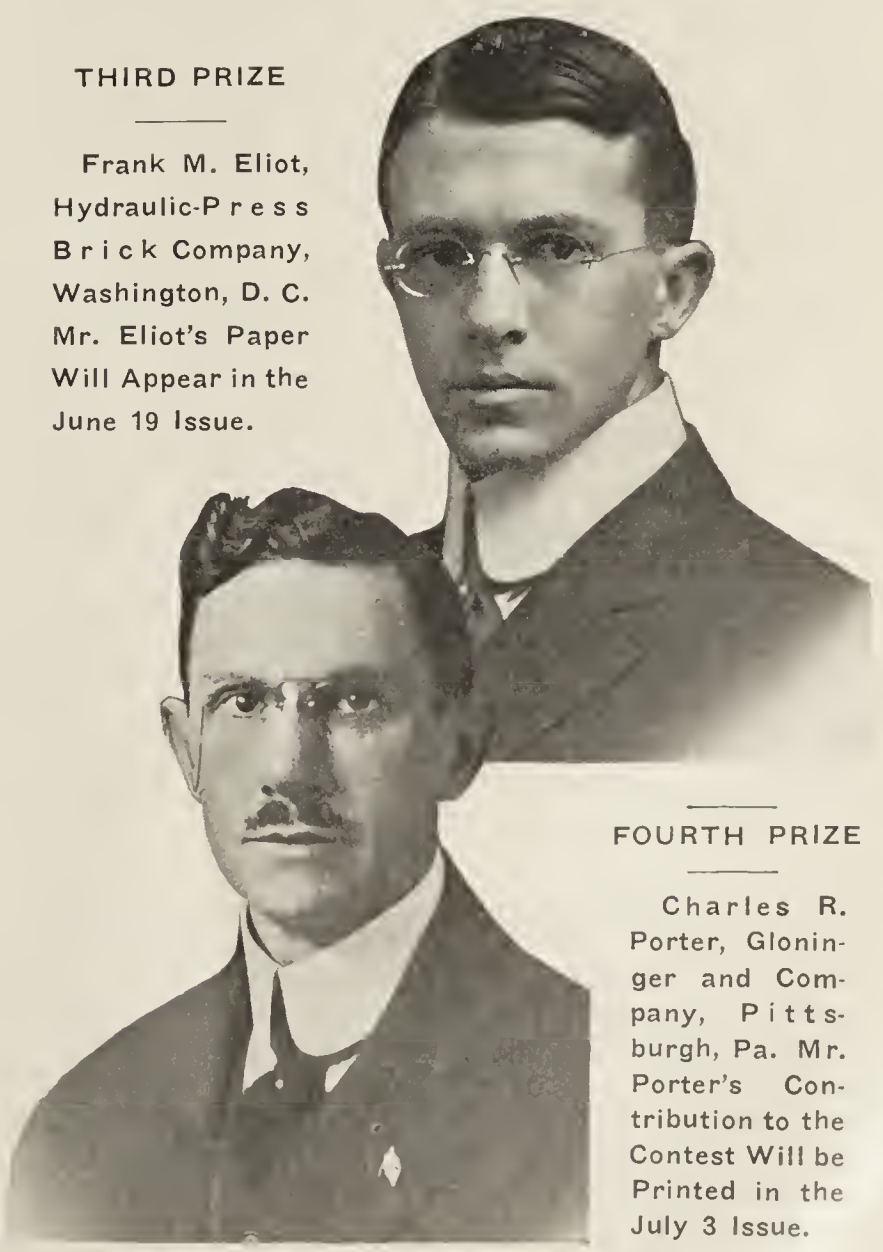
PAPERS TO BE PUBLISHED FROM ISSUE TO ISSUE

As was announced in the February 13 issue of "Brick and Clay Record," we will print the winning papers, beginning with the first in this issue, and the others following in succeeding issues. The same will be done with those who have received honorable mention. Other papers submitted will be published as their merit and quality seems to dictate, especially those which bring out some particularly valuable argument against "knocking."

We feel that if men like Mr. Black, Mr. Reid and Mr. Aschemeyer were willing to sacrifice considerable time and invest much labor in the judging of these papers for the benefit which the industry and they themselves would receive, the face brick salesmen of this country, both those who submitted papers and those who did not, should surely find the reading of the winning contributions and others that will be printed, at least as good an

THIRD PRIZE

Frank M. Eliot, Hydraulic-Press Brick Company, Washington, D. C. Mr. Eliot's Paper Will Appear in the June 19 Issue.



FOURTH PRIZE

Charles R. Porter, Gloninger and Company, Pittsburgh, Pa. Mr. Porter's Contribution to the Contest Will be Printed in the July 3 Issue.



John H. Black



A. S. Reid



F. C. Aschemeyer

THE MEN WHO PICKED THE WINNERS IN THE SALES ETHICS CONTEST

investment of time. We cannot recommend too careful a perusal of Mr. Hindman's paper which appears on another page of this issue, and we urge that if any additional copies of this issue are desired, they be ordered at once as the supply is very limited.

So successful has the first contest been that "Brick and Clay Record," as well as others who are vitally interested in the progress of the face building brick business, believe that another contest, perhaps in the fall, will be equally as profitable with a different subject chosen as the point for discussion; therefore, do not be surprised if you see an announcement in a couple of months of such a contest and if you did not submit a paper in the first competition, resolve now to do so when the next chance is given. If you did not win a prize, set your determination on carrying away a "plum" the next time.

* * *

Prof. Orton Joins Quartermasters' Corps

Professor Edward Orton, Jr., beloved father of the American Ceramic Society and friend of technical education in the clayworking industry, is doing his "bit" by obtaining an indefinite leave of absence from the Ohio State University to assume active duty in the Quartermasters' Corps, United States Army, with orders to go to San Antonio, Texas.

"This will be quite a change from University work," writes the professor, "but changes are in order in the country at the present time, and those who do not ask for them are going to get them anyhow."

Words of commendation and of good wishes from all who know him, go with Professor Orton as he enters upon this patriotic task.

* * *

Jersey Association Holds Annual Meeting

Clayworkers of the Raritan River district of New Jersey who are members of the New Jersey Clay Miners' and Manufacturers' Association, held their annual meeting at the Packer House Hotel, Perth Amboy, on April 2. The meeting was largely attended, practically every one of the clay products companies in that section of the state being represented by one or more delegates.

The business session was held first, the feature of which was the election of officers. Lucius H. McHose presided, and the following officers were elected: President, L. H. McHose, of the clay mining company of that name (re-elected); vice-president, Frank Valentine, of the Valentine Fire Brick Company, of Woodbridge; treasurer, August Staudt, and secretary, E. T. Laubach.

EXECUTIVE COMMITTEE NAMED

The following executive committee was named: C. W. Crane, of the Crossman Clay Company; L. M. Schindler, of the Atlantic Terra Cotta Company; Abel Hanson, of the Fords Porcelain Company; M. B. Eilert, of the C. Pardee Tile Works; John Fritzinger, of the National Fireproofing Company; Victor W. Main, of the National Fireproofing Company; R. H. Minton, of the Phoenix Ceramic Works; Fred F. Anness, of the Anness and Potter Fire Clay Company; William P. Campbell, of the Raritan River Clay Company; Raymond Edgar, of the Edgar Brothers Clay Company, and Carl Von Hartz, of the Didier-March Company.

All of the members of the executive committee were called upon to make addresses, which proved of great interest and value to the members of the association. Mr. Pfeiffer, of the Maurer Brick Works, and Messrs. Proctor, Mathiasen and Clare also spoke during the session.

* * *

Most Patriotic Brick Man in Chicago

Who is he? To tell that right "off the bat" would be giving the whole thing away. However, we can tell you this much that one day this week, after bolting his pork and—, pie and coffee, he hastily repaired to the bank like a patriotic citizen to do his "bit" by buying a "liberty bond."

While he was bidding good bye to his one hundred iron men he was secretly planning a coup, by which he would rush in on his fellow face brick distributors in the "I Will" city and show them up by waving his bond. He was doomed to disappointment, however, for the clerk who sold him the security told him he could not have the evidence until June 15.

Too bad, "Giff." We'll tell the boys about it anyway so they'll know that you are no "slacker."

NOTES *on* WASTE HEAT TUNNEL DRYER OPERATION

Some Very Interesting and Valuable Experiences in the Handling of This Important Piece of Equipment

By Otis L. Helfrich

Editor's Note: The following article outlines some of the problems which the manufacturer contends with in the operation of a waste heat tunnel dryer, and offers suggestions that will aid in their solution. It is not intended to cover every possible problem that might arise; instead its author has attempted to point out the most common difficulties that occur and to explain means of solving them. In every case of dryer difficulty given below, the author has used the solution which is given and has found it to overcome the trouble involved. The article is written to apply to waste heat tunnel dryers having blower fans for driving the hot air into the dryer and an exhaust for pulling the waste air from the cold end. One of the admirable features of this valuable article on dryer operation is that its author loses little, in fact, no time in preliminaries but strikes at the heart of his subject at the very outset and keeps up the same pace thruout the article, omitting entirely useless discussion of obvious points and details.

A CLEARER UNDERSTANDING of the subject concerning the operation of waste heat tunnel dryers may be obtained if it is divided into two parts: 1. The mechanical operation of the dryer cars to the best advantage: 2. The control of the heat and draft.

I. MECHANICAL OPERATION OF CARS

Without losing time with preliminary or introductory statements, we will take up the first division of the subject—the mechanical operation of the dryer cars to the best advantage—and consider methods of overcoming difficulties arising here. First, it is of prime importance to keep the cars together while they are going thru the dryer. If, when the cars are pulled from the hot end, the upper cars do not follow down immediately, a space is left in the dryer where there are no cars. Just about the time the break is made, cars of green brick are shoved into the cold end, starting a loaded car running across the empty space with nothing to stop it but the next load twenty or thirty feet ahead. This always results in disaster —usually a bad wreck and always ruined ware.

There are two ways of overcoming this difficulty. First, by having the cars hooked together so they cannot separate until they are taken from the dryer. This is a splendid system and should be used wherever possible. But where the cars are inaccessible after they get into the dryer, it is impossible to use this method of keeping them together. It then becomes necessary to shove the cars forward at the cold end of the tunnel at the same time the dry cars are pulled from the dryer. Altho this method requires an extra man, if he saves just a few bad bumps to the ware going thru the dryer the amount of brick saved will more than pay his wages.

This latter method makes necessary some kind of a signal system from one end of the dryer to another. On some plants, a speaking tube is used while on others a system of electric bells, attached to a "call system" such as is used in hotels, is employed, the number of rings indicating which tunnel the dryer man at the hot end is ready to pull. Both of these methods work well and save a lot of time that dryermen sometimes waste in walking from one end of the dryer to the other to see what the man on the opposite end is ready to do.

PULLING CARS FROM THE DRYER

Another important feature in the operation of a tunnel dryer is the system employed to pull the cars from the dryer. To operate a dryer efficiently, cars should be pulled from the dryer just as soon as the ware is dry. The best way to accomplish this is to pull one car from each tunnel all the way across and then begin at the first tunnel and repeat the operation. This method keeps the green and dry brick even in all the tunnels—it prevents having one tunnel filled with green ware while another tunnel may contain five or six cars of dry ware, which condition causes a large portion of the hot air sent thru the tunnels to be wasted.

Loading of the cars into the tunnels should always be done with an iron hook that can be attached to the iron part of the car. This prevents hand-marks on the ware, which result when workmen handle the cars without using hooks. It is also important, in filling the dryers, to avoid setting cars of ware directly over the openings that lead into the exhaust flue at the cold end of the dryer. When this is done, the draft is checked considerably and a condition detrimental to good drying sets in.

TRACK POINTERS OF IMPORTANCE

It is also important to keep the tracks in the tunnel clean. Green ware often drops from the car onto the track and is run over by the car. The writer is familiar with cases where enough clay was allowed to cake on the rail in the tunnel to cause the car to tip to one side so far that it scraped against the dryer wall, with the result that the ends were torn off many of the pieces of ware on each car.

Another point which is frequently overlooked is that of keeping the track on the transfer car level with the dryer stubs. If a car of brick is allowed to drop off the stubs and fall an inch or so before striking the transfer car tracks, the transfer is subjected to treatment much more severe than it was designed to withstand, and which will inevitably affect the length of its life. The ware also is injured from this jolt. Perhaps it does not show up right on the spot, but when the weight that is on the bottom courses on a dryer car is considered and then the

added strain which is imposed upon them when the car drops to the transfer rails, it will be readily realized that there are strains set up in the structure of the ware which may show up later in the burning.

All of the above points in dryer operation are quite simple and no doubt are watched by most manufacturers. However, the writer has seen them neglected on so many plants that he thought it best to mention them here before starting on the main theme of this article, namely, the handling of the heat and draft in operating a waste heat tunnel dryer.

II. CONTROL OF HEAT AND DRAFT

The basic principle in drying is to provide enough heat to evaporate the water from the green ware, and enough air to carry that water away. In offering the following suggestions the writer is assuming that the dryer is run to full capacity. If it happens that the dryer is designed large enough so that it is not pushed to get out the daily production, many of the following points can be neglected and the dryer still perform its work satisfactorily.

In the first place, there should be a heat recorder attached to the hot air flue leading to the dryer, otherwise the amount of heat carried can only be guessed at—and guessing is always a dangerous game. This recorder is usually attached to the hot air flue just in front of the induction flue. Just where it is placed does not make a great deal of difference. It is used simply to make it possible to duplicate certain heat conditions in the dryer that have been found by experience to be best.

Cooling periodic kilns usually furnish enough heat for drying. However, it frequently happens that the dryer runs short of heat from this source and heat has to be furnished by other means. Sometimes an empty kiln is connected to the dryer and fires started in it to furnish heat. But this method is only a makeshift and is not entirely satisfactory. A kiln is not designed properly to be used for that purpose and much of the fuel burned is wasted. A plant that is designed correctly and efficiently operated will not have a kiln standing around empty to be used for that purpose. It is best to have an auxiliary furnace attached to the dryer which can be used in such emergencies.

GOOD DRYING DEPENDENT ON AIR SUPPLY

The amount of heat required and the temperature to be carried are factors in the operation of a dryer which have to be worked out separately for every plant. For quick drying the temperature carried should be as high as the ware will stand without cracking, provided, of course, that the air supply is not cut down to maintain this temperature. The ideal condition is obtained when a large

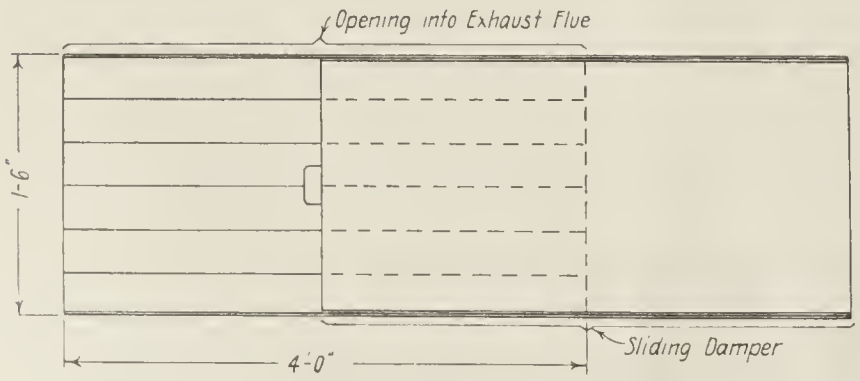


Fig. 1. By the Use of a Sliding Damper Similar to the One Illustrated the Regulation of the Draft in Each Dryer Tunnel Becomes Very Simple

volume of hot air is going thru the dryer, and the larger the volume of air the better the drying conditions. If it is impossible to maintain as high a temperature as the ware will stand, it is better to allow the heat to go down slightly, rather than cut off the air supply and get the higher temperature. It might be well to state here that,

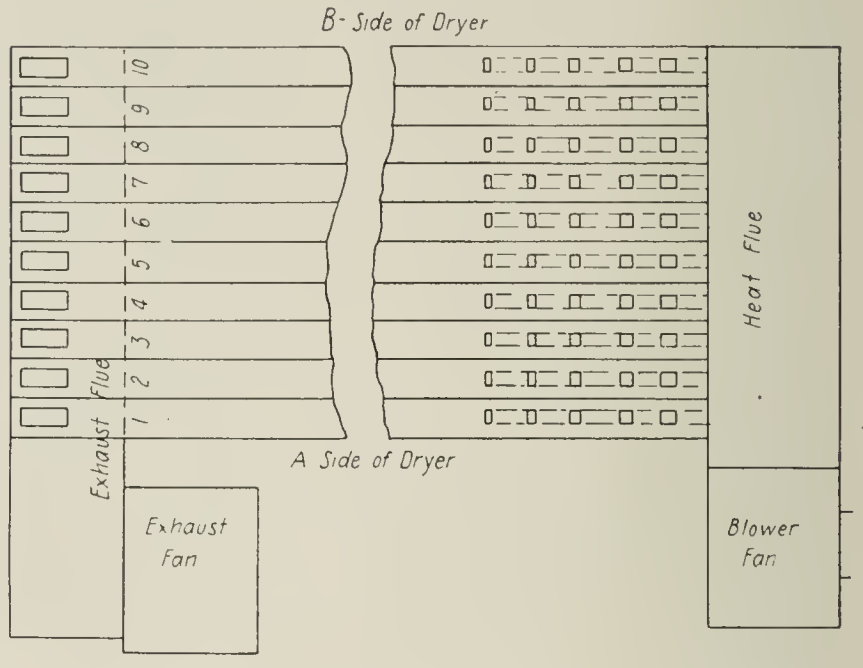


Fig. 2. When the Exhaust Fan Is Situated as Shown Above, the Openings Leading Into the Exhaust Flue Must Be Regulated to Create an Equal Draft in Each Tunnel

contrary to the general impression that as long as the fans are going at their usual speed the same amount of hot air is furnished to the dryer, the speed of the fans by no means constitute an accurate indication of the air supply. There must be some place for that air to come from and if a fan is pulling on kilns that are blocked up tight, it has no chance whatever of furnishing the amount of air to the dryer that is required.

It was the writer's experience at one time to regulate a thirteen tunnel dryer on a twelve-kiln face brick plant. Four or five cooling kilns were connected to the dryer at all times and what the writer considered an excellent heat was maintained in the tunnels. But the brick came thru wet and it was a case of either setting wet brick toward the end of each day or cutting down production. Upon investigation it was found that the burner who connected the goose necks to the cooling kilns did not tear down part of the casing on the rear door of the kilns. His theory was that the heat in the cooling kilns should be conserved as long as possible in order to keep plenty of heat for the dryer. When we tore down part of the doorways and gave the fan a chance to get the air it was capable of handling, the drying capacity was increased so much that we were able to build another kiln and still have plenty of dry brick—even tho the temperature of the air going thru the dryer was reduced almost 100° F. Of course the kilns must not be cooled so rapidly that the brick will crack in the cooling, but it is *highly important to have plenty of air going thru the dryer at all times.*

If it is found that the kilns must be kept closed up tight for several days to prevent cracking during the cooling period, it is well to raise one of the manholes over the waste heat flue and allow air to get to the dryer in that way. Too much cannot be said about getting plenty of air to the dryer—good drying depends most upon a large volume of hot air.

A BARREL OF WATER TO A THOUSAND BRICK

It might be interesting to remind ourselves here of the amount of water that has to be carried from the dryer by this hot air. An eight-pound green face brick contains at least two pounds of water when it comes from the machine. That means that every thousand green brick that goes into the dryer contains 2,000 pounds of water,

or thirty-two gallons, which is a little more than a barrel. Did it ever strike you that the air going thru your dryer must carry away a barrel of water from every thousand brick which passes thru the tunnels. When one stops to think of the amount of work the air going thru the dryer has to do, it is easier to understand the necessity for having such a large volume at all times, and to grasp the reason why heat alone in a dryer is practically useless.

After we have the forced draft fan sending the required volume of hot air into the dryer the problem then becomes one of using the air so that each tunnel is doing the largest amount of work it is possible for it to do. In taking up this phase of dryer operation we will consider first the relation of the amount of air handled by the blower and the exhaust fans. If the exhaust fan is handling too much air in relation to the blower fan, or pulling out of the dryer more air than is being forced in, there will be a suction at the hot end of the dryer which may easily be discovered by the way the doors slam shut or by the inrush of cold air into the dryer when the doors are opened. If this suction exists detrimental drying conditions are created. When there is a suction at the hot

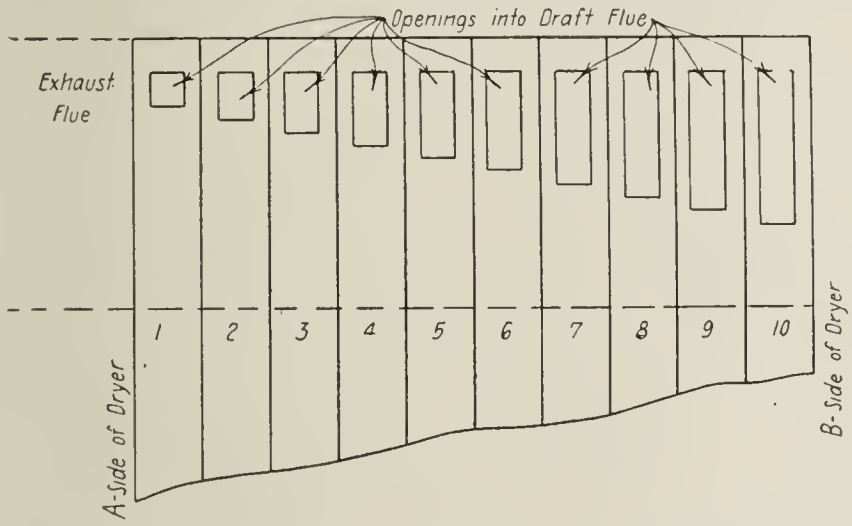


Fig. 3. When Each Tunnel in Fig. 2 Has Been Properly Regulated, the Size of the Openings Into the Exhaust Flue Will Vary About as Shown In This Drawing

end of the dryer, a large volume of cold air will leak thru those ever-present cracks in the dryer doors in twenty-four hours to chill the drying tunnels considerably.

CRACKING ALSO CAUSED BY TOO ACTIVE EXHAUST

Aside from the loss in heat, another complication might arise that is equally as bad. With the exhaust fan handling relatively too much air, the moisture might be carried away too rapidly from the cold end of the dryer and cause cracked ware. The ideal condition is to have the air quite moist in the cold end of the dryer. When that condition exists, the ware does not start to dry as soon as it is put in the dryer but is given a steaming first. This allows the brick to heat up all the way thru before the drying starts. Then when the brick do start to dry, the water finds freer passage to the surface of the ware and is removed more easily and unequal strains are not set up which might cause cracking. However, if the ware will stand it, this steaming process may be neglected and the fans regulated only to get rid of the suction at the hot end.

This condition of the exhaust fan handling too much air in relation to the blower fan can be remedied in several ways. The exhaust fan can be slowed down or the blower fan speeded up, but this requires new pulley ratios on their drives. Simpler and quicker methods will arrive at the same result.

First, see that the blower fan is handling as much air as it is capable of handling at the speed at which it is running. Give it more air by opening a manhole or tearing the casing down a little farther on the cooling kilns. The chances are that, given a fair chance, the fans will handle enough air to do away with the suction at the hot end and substitute for it a slight pressure. If this fails, cut down the size of the openings leading into the exhaust flue. This will of course cut down the amount of air handled by the exhaust fan and do away with the suction at the hot end. If the openings into the exhaust flue are provided with sliding dampers as shown in Fig. 1, this operation is quite simple. Such dampers will also be a great help when it comes to regulating the amount of air going thru each tunnel, as will be shown later on.

Everyone familiar with dryers knows what it is to have good and bad tunnels. The dryer man shakes his head, looks wise, and vows that certain ones are possessed of an evil spirit. However, anyone having patience enough to stay on the job can get his dryer regulated so that every tunnel produces exactly the same results.

LOCATION OF FAN ONE SOURCE OF TROUBLE

When the exhaust fan is situated as in Fig. 2, it will naturally pull harder on tunnels 1, 2, 3, etc., than on tunnels 8, 9 and 10. This will, of course, cause more of the hot air to go thru the first three or four tunnels than thru those on the other side of the dryer, away from the exhaust fan. The thing to do is to cut down the sizes of the openings leading into the exhaust flue from those tunnels which are getting too much of the draft, which will cause the exhaust fan to pull less on them and harder on the tunnels that are lagging behind in the drying. If the dryer is equipped with the sliding dampers shown in Fig. 1, it is relatively simple to regulate the draft in each tunnel, altho it requires time.

If the dryer is not equipped with sliding dampers, it becomes necessary to block the openings temporarily until the right size of opening is found, when the blocking is made absolutely permanent. If the temporary blocking is allowed to remain over the opening, it will soon be kicked out of place and the task of regulating the dryer must be done over. When each tunnel has been properly regulated the size of the openings will vary about as shown in Fig. 3.

It may be that the blower fan is handling so much air that it is blowing it clear past tunnels 1, 2, 3, etc., and causing the greatest amount of draft to go thru the tunnels

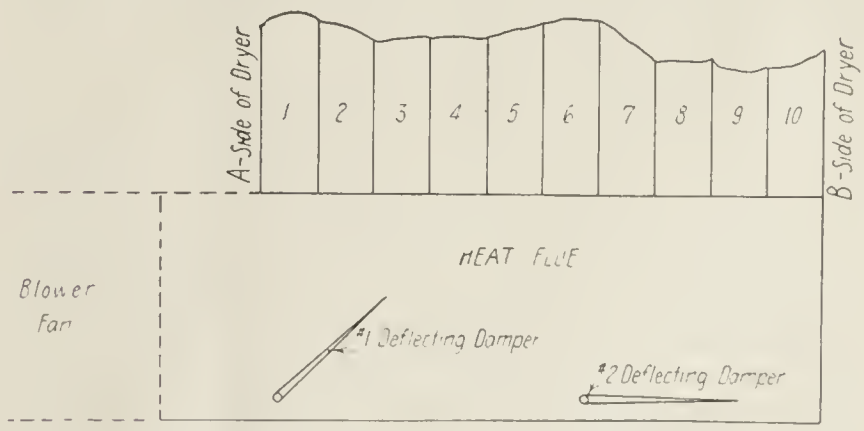


Fig. 4. Deflecting Dampers Used on Certain Types of Dryers to Control the Draft in Different Tunnels

at the B side of the dryer (Fig. 2). This can also be readily overcome by regulating the size of the openings into the exhaust flue.

ANEMOMETER DETECTS TUNNEL DIFFERENCES

The quickest way of determining when the tunnels are doing uniform work is by using an anemometer. This is an instrument about the size and shape of a small alarm clock with which the velocity of the air going thru the

tunnels can be measured in feet per minute. When it is found that the same amount of hot air is going thru each tunnel, it is safe to assume that every tunnel will do uniform work.

Another method, somewhat less accurate and expeditious, is to take the temperature of the tunnels. When this system is employed, the temperature should be taken quite a distance in from the hot end of the dryer to avoid inaccurate readings. This position, however, is rather hard to reach when the dryer is in operation and full of loaded cars. Also, one tunnel might be as hot as any other but still not have sufficient draft, and the temperature you measure might be a dead heat that is doing no good. Another point against regulating by temperature is the slowness of the process since each time the sizes of the openings into the exhaust flue are changed, a full day is required for the temperatures to adjust themselves to the change. Thus, if one tunnel was considerably hotter than the rest and the draft was cut down, the temperature change would take place very gradually and it would require time for it to adjust itself so that it could give a true indication of what the change in draft velocity had really done for the dryer.

The third way of regulating the dryer is by the number of cars of dry ware pulled from each tunnel. This method is really the final check on all of the others for when the dryer man is able to pull cars from the tunnels straight across the dryer all day without running into wet ware in some tunnels, the tunnels are regulated properly. And the dryer is not regulated properly until this can be done. However, when a change has been made on the dryer, it is not possible to judge its effect by the condition of the ware withdrawn until two or three days have elapsed. It will take that long for the real results of the change to show up. Therefore, since it may be necessary to make a dozen or more changes in the flue openings before the dryer is properly regulated, and two or three days are required to pass judgment on each change, unless an anemometer is used, it will be readily seen that regulating a dryer is a much prolonged task.

With the anemometer, however, the results of a change in size of flue openings can be determined almost immediately after the change has been made. The instrument can be obtained from any good supply house for a nominal amount and is so simple that any employe able to read figures can use it. The ware saved in having the dryer regulated quickly, rather than by the other slow methods, will more than pay for the instrument.

DEFLECTING DAMPERS TO CONTROL DRAFT

Some dryers are equipped with deflecting dampers in the heat flue at the hot end of the dryer, as shown in Fig. 4. These dampers are built of steel, a little less than the height of the flue so they will swing freely, and are from three to five feet wide. They are used to deflect the draft into certain tunnels that are not getting as much as they need. For instance, if tunnels 1, 2, 3 and 4 are not getting their share of the draft, damper No. 1 could be turned out a little from the flue wall as shown in Fig. 4. This will deflect more of the draft into those first few tunnels. Damper No. 2 could be manipulated in the same manner if the tunnels at the end of the dryer require more heat. However, it is the writer's opinion that these dampers should not be used to any great extent. When the damper is turned so that it is sticking out from the wall, it is cutting down the size of the flue just that much and necessarily adding just that much resistance to the flow of the air in front of the blower fan. As more resistance is added, the fan will deliver less air and a reduction in the supply of hot air for the dryer always produces bad effects. It is always best to regulate the tunnels by the openings leading into the exhaust flue, whenever this is possible. In that way the flow of hot air going into the dryer is not checked or retarded, but is checked after it has delivered its heat to the dryer and is leaving it. In other words, the amount of heat going into the dryer itself is not cut down.

KEEPING THE WASTE HEAT FLUES DRY

It might be well to say a word here about keeping the waste heat flues dry at all times. No doubt all clay products manufacturers realize the necessity of this and yet I dare say that there are damp waste heat flues on many plants. If there is water in the flues, the hot air passing over it will become at least partially saturated with water. A given volume of air will carry just a certain amount of moisture at a given temperature. If it has already a large part of what it is able to carry before it ever reaches the dryer, that means, of course, that it will be able to carry just that much less water from the drying ware. It is like trying to pour a gallon of water into a gallon bucket that is already three-quarters full—some of it is bound to slop over. When it is recalled to mind what an immense amount of water the air going thru the dryer must remove in drying the ware, the folly of loading that air down with a burden of water before it ever enters the dryer is easily appreciated.

If there is any one operation in brickmaking that is neglected more than all the rest, it is the drying of the ware. Experts on burning, equipment, etc., are quickly sought to give aid in overcoming troubles which arise in these departments of a clay products manufacturing plant, but troubles incident to drying the ware are usually left for Fortune to solve (which she rarely does), or they are turned over to the dryer man, who usually is not fitted to work out a solution. As a matter of fact, a considerable part of the bad ware drawn from the kilns really starts in the dryer, but does not show up until the ware is burned. It might be a wise policy for all of us to show a little more interest in our dryer.

* * *

From Gas to Coal Boosts Price in Kansas

Conditions created by the state public utilities commission when it shut off the supply of natural gas to plants thruout southwestern Kansas during the past winter caused the price of brick to jump to the high levels, according to Charles A. Noll, who is financially interested in a number of Kansas brick plants. When this action was taken, it was necessary for the plants to use coal in burning their brick, which increased the cost of production by about four dollars a thousand. This increase in manufacturing costs was of necessity added to the selling cost, with the result that brick which were obtainable at $6.50 a thousand in January are now selling for $10.85.

Not only were the brickmaking companies in that section compelled to add about four dollars a thousand to their manufacturing costs when they substituted coal for gas, but the order of the commission forced them to abandon operations until they could equip their plants to use coal as fuel. This cessation of operations resulted in a shortage of brick estimated at about 30,000,000, which the dealers had to face as the spring building season opened.

Even at the prices being quoted dealers are finding it exceedingly difficult to fill the orders which are being received. Mr. Noll, it is said, has found the demand

so strong as to make it necessary to accept orders only from regular customers, with the provision that they will be filled as soon as possible.

It is estimated that the cost of burning brick with gas is but sixty cents a thousand, while that of burning with coal hovers between four or five dollars a thousand. The use of the latter material as a fuel also entails other expenses which are not met when gas is employed, such as additional labor and conveying equipment to get the coal to the kilns. Many of the plants which installed the necessary equipment for burning with coal do not intend to return to gas when the shortage has passed over.

Cleveland Averts Another Damaging Strike

With the settlement of the teamsters' strike, which threatened to develop a general sympathetic strike thruout the city and to throw the building trades into another period of idleness and unrest, Cleveland building projects are going forward again with renewed activity.

After a joint conciliation board had become hopelessly deadlocked over the situation, Edward A. Roberts, secretary of the Builders' Exchange, stepped between the opposing parties on May 12 and drew such compromises from each as were necessary to bring them to an agreement. The teamsters greatly modified their closed shop demand and in return secured an increase of approximately five cents an hour, shorter hours, and better working conditions. With the exception of sheet metal workers, all trades are now satisfied and work is going forward. Building supply and lumber dealers were largely affected by the teamsters' strike, the original aim of the strike being to unionize these yards.

Agreements have been reached between the employers' association and the trades covering one, two and three years and an attempt is now being made to organize a permanent board of conciliation.

The Barkwill Farr Company, of Cleveland, Ohio, used novel methods of delivering brick during the recent strike of teamsters and chauffeurs in that city. About midnight on May 11, twenty-one of the company's trucks left one of the plants at the same time, loaded to capacity and bound for various jobs thruout the city. All deliveries were made by daybreak. The original caravan was half a mile in length.

The BIG CITY STILL *is* OPTIMISTS' CAMP

WAR with all its horror may not yet have been brought home to the United States of America, but every day sees evidence of America awaking to a fuller realization of just what being "in a state of war" means. The slackening of building operation in New York, Philadelphia, Baltimore, Albany, Troy, Syracuse, Utica, Schenectady, Newark and Boston is causing comment, of course, but little or no uneasiness. Even the most rabid optimist has to take off his hat to the pessimist for calmly but nevertheless seriously maintaining that being in the throes of war is having its effect. But instead of there being squeamishness on the part of builders, contractors, producers of building materials and real estate operators, there is that feeling of "what is to be will be" and "things are not so bad but what they could be worse."

Viewed by one high authority in Manhattan, the New York real estate and building business is apparently becoming quieter by the minute. The same authority frankly states that the tapering down of the market is due chiefly to the fact that it is the general inclination of investors, operators and builders, as well as every one interested in real estate, to take a position on the fence. And what is more it is quite popular to remain on the fence. This is a general attitude, not only with real estate, but with the various lines of business dependent upon the investing public for patronage—and the war is solely responsible.

DOUBT THROTTLES PROPOSED BUILDING

If there is one thorn that hurts when pushed into the financial skin of America it is the thorn of doubt. Doubt has been and is prevailing to such an extent that building operations which by all ordinary rules of the game ought to be pushed for all they were worth have been choked off abruptly and with a firmness that is unmistakable. The atmosphere of doubt is prevalent everywhere and about the only real activity shown is that displayed in the race for blocks of the liberty bonds. True, these only return three and one-half per cent., but this is considered a good yield when the attractive feature of tax exemptions is considered and in these days the man with the money has good reason to search for the things that have no tax strings attached.

There is money and plenty of it, but the lenders are extremely timid and there is difficulty in raising mortgage funds. There is a comparative lack of applications for substantial loans because the market is restricted and builders and operators are generally refraining from speculation, owing to the uncertainty of the outcome of the wave of high material costs. This is having a detrimental effect and the market will probably remain in a semi-dormant condition until there is a general clearing of the factors that now prevent activity. Property, however, was never better rented in the East with prices as favorable from the viewpoint of the investor. One of the best proofs of this is the almost absence of "To Let" signs from properties in some of the prominent thorofares.

It is almost a "crying shame" the way prosperity would like to rule, but has been flung aside by the war gods. That is expressive of the sentiment among scores of builders. Real estate agents in city or country, financiers, bankers and others, are all harping on the plentifulness of the "stuff that makes the mare go" and bemoaning the fact that conditions of unrest prevent the loosening of the purse strings.

PRICES REMAIN FIRM

There is a falling off in demand for building materials in some particular instances amounting to considerable, but one is impressed with the persistent and consistent firmness of the prices of all building materials. At present there does not appear to be a single bit of evidence pointing to a revision downward of the price lists.

The wisdom of holding off building operations because of high material prices has been questioned for it is pointed out that present quotations, even if from thirty to fifty per cent. higher than a year ago, are actually low when

(*Continued on Page* 1071)

FACE BRICK'S WORST EVIL

Paper Winning First Prize in the Sales Ethics Contest.
A Masterly Presentation of Knocking and Its Effects

By Frank T. Hindman

Of the Martin Brick Co., Pittsburgh, Pa.

A KNOCK is any statement by a salesman about a competitor or his product, intended to prejudice a client against either or both, for the purpose of making a sale. Such a statement is a knock, whether true or false or merely misleading. The practice, while perhaps not universal in the face brick business, is widely prevalent. It would probably be impossible to find a salesman with an absolutely clean record in this respect. It is human nature.

It is necessary in this discussion to take a broad view. The salesman should not form his opinions and draw his conclusions regarding knocking merely from the instances when he has suffered. Knocking is knocking wherever found, and is to be condemned, regardless of who is the culprit and who the victim.

There are peculiar conditions in the face brick business which increase the temptation to knock. Every brick is individual, has its own peculiar characteristics. Selling brick is quite different from selling sand, lime, cement, lumber, etc. Brick are sold, in many cases, from samples, and the client, who is very often not in position to make a personal investigation, must depend to a great extent on the word of the salesman. Many clients buy brick only once in their lives, and for this reason salesmen sometimes knock to an owner, who would not do so to an architect or contractor.

KNOCKING IS OF FIVE KINDS

1. On quality.
2. On price.
3. On service.
4. On a particular kind or color of brick.
5. On a company or salesman personally.

There are three kinds of knockers:

1. The malicious knocker, who in his ignorance and smallness of soul, thinks that knocking is the way to sell.

2. The subtle knocker, who thinks he is knocking without the client being aware of it, and who would probably indignantly deny it if accused.

3. The salesman, ordinarily innocent of the practice, who in the face of keen competition, or realizing that he is about to lose the order, knocks as a last resort.

Reform depends finally on the individual salesman, and the first step in this direction should be a keen and careful analysis by him, of himself and his sales methods, to determine to which class of knocker he belongs and of what kinds of knocking he has been guilty.

CAUSES OF KNOCKING

The primary object of knocking is to make the sale. In some cities, perhaps, it is done because it is the custom, because employers and salesmen have failed to realize not only the evil but the futility of the practice. To the salesman who is ignorant of a better system or unacquainted with his product, it may seem the only or at least the easy way to sell. Or he may knock in retaliation, because he has heard that a competitor knocked him. Such apparent justification does not mitigate the offense or lessen the evil bound to follow. Some salesmen have the habit of knocking confidentially to particular friends. It is a habit that grows and it becomes easy to adopt the confidential attitude with practically every client.

Misrepresentation of his own brick by a salesman is a frequent, and one of the worst causes of knocking. A competing salesman loses business because of this misrepresentation and feels that his only recourse is to tell what he believes to be the truth about the brick misrepresented. The satisfaction of having an alibi does not compensate for the loss of the sale.

EFFECTS OF KNOCKING

The immediate effect may be to close the sale. It would be hard to gather reliable data on this, but the percentage of orders directly due to knocking is undoubtedly small, and is more than likely offset by orders actually lost from the same cause. Taking all sales in which knocking has been an element, all the salesmen in the district will, in the long run, fare about equally, so far as knocking is concerned. The law of average will prevail.

The effect on the knocking salesman is bad. Following a vicious system reduces his efficiency, it lowers his character, it hurts his reputation among the trade and becomes an ever increasing handicap.

The effect on the company is bad. Knocking makes the client suspicious. He feels, consciously or unconsciously, that the salesman lacks confidence in his own product and is in the position of resorting to unethical tactics in order to sell an inferior brick.

The effect on the face brick business in general is bad. If the client, in talking with different salesmen, hears one knock after another, it is not surprising if he feels that he has been beset by pirates, and that he stands small chance of fair treatment and honest value from any of them. Whose fault is it if he condemns the brick business altogether and concludes that it matters little where he buys, as he is bound to get stung anyhow or at least is running a risk? Instances are not unknown of the use of brick of any kind being condemned and some other material substituted.

The product of a particular factory sometimes gets a bad name because of knocking, and it has even happened that the company that did the knocking later became agent for that very factory.

REMEDY FOR KNOCKING

The condemnation of any institution must be accompanied by a remedy for its reform. The adoption of and

belief in Paragraph Four of the Association's Code of Ethics is a good start, but it is a start only, and even so is of no value simply as a printed statement. No government or other organization can legislate morals. A statute declaring men good does not make them so. The mere agreement, even if unanimous, that knocking is wrong will be barren of results. There must be the firm realization and the deep-rooted conviction that knocking is unnecessary and that it does not pay. And if brick are to be sold without knocking there must be something to take its place. The theory must be backed up by execution. This is the gist of the whole matter.

There will always be competition, but the new competition of the present day is not of the old cut-throat variety, but is co-operation instead. The old competition was not the life but the very death of business. The face brick industry is learning this thru its national and local associations, and particularly the latter, so far as knocking is concerned. A better feeling exists, if for no other reason than that it is pretty hard to knock a competitor thru the week or the month and then discuss this very subject with that same competitor around the association dinner table.

FACE BRICK SALESMAN MORE THAN A PEDDLER

There is no question of the attitude of the various associations in this matter and the same can be said of most of the companies. But the benefit to be derived from the application of Paragraph Four depends on the actual practice of the individual salesmen. The face brick salesman is more than a peddler. He sells his professional services in the same way if not in the same degree, as the architect, the lawyer, the doctor. His work, as well as the policy of his firm, is not merely to dispose of as many brick as he can for the most money. He does more than this, he has a higher and more important function. The face brick salesman sells four things:

1. Professional service.
2. Material.
3. Business service.
4. His own and his company's reputation.

Professional service includes suggestions and advice as to the kind of brick best suited to the operation, the composition and color of the mortar, the size and character of the joint, special shapes, etc.

The salesman's statements concerning the material, in endeavoring to effect the sale, should be limited strictly to the truth, and, what is of equal importance, should include the whole truth, insofar as any part of it might influence the decision of the client. If the salesman feels that this would be disastrous, it is time for him to change firms or quit the business.

Business service includes factory capacity and equipment, time of shipment, car service, delivery, and office routine in handling the order.

Every sale or attempted sale should be an element in building the character of the salesman and of his company, and in developing for them both a reputation that will be a big and valuable asset and will make them immune to any knocking by competitors.

PROGRAM OF SALESMANSHIP WITHOUT KNOCKING

This is a pretty sizeable program, without any knocking included. And when the salesman has made of himself an artist in the first part, has reached the limit of knowledge in the second, can truthfully promise perfection for himself and his company in the third, and has attained to the highest possible state of development in the fourth part, and still can't sell brick, then, perhaps, as a matter of charity, he should be made the object of a special dispensation by his association and granted a knocker's license. Provided, of course, that he still retains his connection with the pay roll.

This outline puts brick selling on a rather high plane. But it will hardly be objected that it is too high. And the salesman who does his best to live up to it will find ample outlet for all of his energy and enthusiasm. He will not only have no time for knocking but will develop a character so broad and so honest and so liberal that knocking will be utterly at variance with it. It will be impossible for him to stoop to the practice.

THE RESULTS OF ELIMINATING THE EVIL

The elimination of knocking, or if this is not humanly possible, the reduction of it to a minimum, will result in a greater degree of harmony among all face brick men. This harmony will further the spirit and practice of co-operation, which is still capable of some development in the brick business, and which has resulted in everlasting benefit to those branches of industry which enjoy it.

The elimination of knocking will make easier the universal adoption of the one price and open price systems of selling, two policies which have the endorsement of many of the biggest and most successful business men in all lines. It will mean higher prices. Inasmuch as the cost of the face brick is so small an item in the cost of a building, price should be the smallest factor in its sale. And yet a large proportion of the knocking is done because a competitor has made a lower price or, as is often the case, because the client says he has a lower price and is using it as a bait. The salesman feels bound to explain why the price is lower and the knocking begins, and perhaps in the end he cuts his own price or sells a lower quality brick, whereas it should be self-evident, and will be when brick are sold on merit alone, that the lower price of the competitor is an admission of the inferiority of his brick. His own valuation of it is less. Sales are sometimes lost on price, but more are made on quality.

The abolition of knocking is not a panacea for all the evils and unpleasant features of the face brick business, but it will be the end of what is undoubtedly the lowest and meanest of those evils. Knocking is vicious, and no business can thrive on customs that are morally bad. Knocking is useless, and the time and energy expended in the practice is an economic waste. Knocking is out of date, and if the face brick industry is to take the place in the business world that it deserves, and is to be the factor in the commercial upbuilding of the country that it is capable of being, it must get in line with the fast growing forces that are compelling business men to work together to promote the progress that the conditions of modern society demand. For the old competition it must substitute the new co-operation.

* * *

Sewer Pipe and Drain Tile Booklet Issued

"The Clay Pipe Book" is the name of the latest publication issued by the International Clay Products Bureau, of Kansas City, Mo., and is, we believe, the only booklet ever printed which attempts to deal fully and exclusively with vitrified clay pipe and drain tile.

Very profusely illustrated, it traces the manufacture of sewer pipe and drain tile by pictures as well as by words. Illustrations of the processes thru which these products pass in their manufacture follow logically thruout the book and are accompanied by drawings showing different systems of tile drainage, the correct method of laying tile, the construction of sewer pipe road culverts, and tile

drains for street railways, as well as showing the novel uses to which drain tile and sewer pipe are occasionally put.

The text of this valuable booklet, which the International Clay Products Bureau will send free of charge to those who request it, is of especial value to engineers engaged in the work of laying sewer pipe and tile.

Starting off with a preface in which is outlined the value and permanence of vitrified pipe and tile drains, the first chapter of the book gives invaluable information regarding the subject of designing a sewer, and points out the small proportional cost of sewer pipe in relation to that of the complete duct, earnestly warning that the pipe is not the place upon which to practice economy. Tables are given in this division which show the capacities of vitrified salt glazed clay pipe sewers and drains.

The second chapter is devoted to the subject of designing a drainage system, treating such phases as the amount of water to be handled by the drain, co-efficient of friction for drains, lowest safe velocities of flow in drains, depth of drains below surface, designs of different tile drains, and proper sizes of tile used in drainage work.

The third division is given over to the subject of tests and specifications for sewer pipe and drain tile, emphasizing the strength of clay pipe and the manner in which it is tested, besides treating at length the preparation of trenches and foundations for pipe laying. In this division of the booklet is given a table showing the weights, number of feet in one carload, and number of feet required per acre according to spacing, of the different sizes of tiles, and another table giving the approximate ordinary maximum loads on drain tile and sewer pipe in ditches from common ditch filling materials, in pounds per linear foot. Also attention is given here to the acid, alkali, and absorption tests as applied to vitrified clay sewer pipe and drain tile.

The fourth and last chapter in this very valuable addition to clayworking literature deals with new uses for vitrified clay pipe, in which the following are a few of the unusual installations treated: sub-drains for reclaimed deserts; road culberts; sub-drains for roads, railroads, and street car tracks; split pipe installations for gutters and insulating purposes, and the use of vitrified salt glazed sewer pipe for a well casing. "Brick and Clay Record" believes "The Clay Pipe Book" to be a very valuable publication and should be in the hands of its engineer readers especially, as well as a part of the library of sewer pipe and drain tile manufacturers.

STRAWS *that* SHOW *the* WIND

Brief Paragraphs from Many Points, Indicating the Market's Trend in the Light of Building Activity

That the scarcity and high costs of both materials and labor are restricting new construction has for some time been known, and the fact is emphasized by latest statistics of building published in "Dun's Review." Permits taken out at one hundred cities during April involved an expenditure of $77,283,900, a slight gain over the $76,211,963 reported in March, but a decline of about ten per cent from the $85,779,104 of April, 1916.

This is the first occasion since last September that a loss has been shown in comparison with the previous year, and the exhibit is even more adverse when the advanced prices, which naturally tend to swell this year's totals, are considered.

While a majority of centers disclose decreases, the April reduction is mainly accounted for by the contraction in Greater New York, where the value of new permits fell from $14,786,078 to $8,036,709. Outside the metropolis the aggregate, $69,247,191, compares with $70,993,026 last year, and particularly sharp declines appear at Chicago, Minneapolis, Duluth, Philadelphia, Rochester and San Francisco of the more important cities. On the other hand, increases of size occurred at Detroit, Milwaukee, and St. Louis, and at some other points.

* * *

The building trade in the Pittsburgh (Pa.) territory can truthfully be stated to be in a chaotic condition. With all the efforts being made to keep a "stiff upper-lip," there is a general feeling of apprehension shown by contractors and material dealers. As it is today no contractors or sub-constractors can estimate a price of work and allow his bid to stand scarcely forty-eight hours because of advancing material prices.

The amount of residence work contracted for during the first four months of 1917 in western Pennsylvania, Ohio, and West Virginia amounted to $12,180,000, warehouses and manufacturing buildings, $7,268,000, and miscellaneous work, (which includes schools, churches, theaters, public buildings, road buildings, etc., etc.,) $42,800,000. These figures show increased values over the first four months of 1916. In dollars the amount is much larger but the number of projects is smaller.

* * *

Building conditions thruout New Jersey and especially in the Hackensack district are constantly improving and constructional work is receiving no great set-back because of difficulties which have arisen since our entrance into the war. However, the danger of a very acute steel shortage setting in as the result of steps which the government may take in commandeering this material, is still threatening in this territory as elsewhere. With steel impossible to obtain, building, of course, would suffer a very decided setback and, in many cases, would have to cease. Conditions in the brick market may be said to be very favorable, a heavy demand being enjoyed and prices being mantained at about $10 wholesale. Many yards have scarcely begun operations at this late date, due to the labor shortage.

* * *

The falling off in building permits issued by the Columbus building department as shown by the recent report of the Chief Inspector German covering April and the first four months of the year, is due largely to the high price of materials, especially structural steel. Many

large business blocks that had been projected have been postponed for the time being. Some speculative building has also been abandoned. During April, 1917, the department issued 324 permits having a valuation of $532,000, as compared with 393 permits and a valuation of $1,166,840 in April, 1916. For the first four months of the year the department issued 793 permits, having a valuation of $1,463,910, as compared with 1,025 permits and a valuation of $2,573,415 for the corresponding period in 1916.

Cleveland's building trade strike did not cause the shrinkage in building operations expected. H. H. Uthoff, of the city building office, reported May 1st that the total building expenditures for April, 1917, were $2,441,500 as compared with $2,625,055 in April, 1916. Moreover for the twelve months ended April 30th, the comparative totals show a gain of $3,750,000 for the current year, the figures being respectively $34,079,150 for the year ending April 30, 1917, and $30,329,020 for the year ending April 30, 1916. For the first four months of 1917 the total building expenditures were $8,588,030 as compared with $7,617,140 for the corresponding months of 1916 or a gain of $970,890 for the past four months.

Quarterly Building Totals Strong

Building contracts for the first 4 months of 1917 in 24 leading states and in the District of Columbia were thus announced May 8th by the F. W. Dodge Company.

Contracts awarded from January 1 to May 1:

1917	$467,298,000	1913	$285,388,000
1916	324,665,500	1912	232,249,500
1915	244,095,100	1911	254,275,813
1914	228,710,000	1910	256,838,804

These figures embrace operations in New York, New England, New Jersey, Pennsylvania, Maryland, Delaware, District of Columbia, Virginia, Ohio, West Virginia, Illinois, Indiana, Iowa, Wisconsin, Michigan, Minnesota, North and South Dakota and portions of Missouri and eastern Kansas.

Statistics for the same period in New England:

Contracts awarded from Jan. 1 to May 1:

1917	$58,472,000	1908	$25,607,000
1916	58,147,000	1907	40,535,000
1915	47,522,000	1906	32,571,000
1914	51,808,000	1905	28,734,000
1913	50,022,000	1904	24,366,000
1912	58,601,000	1903	26,750,000
1911	46,494,000	1902	37,247,000
1910	50,834,000	1901	34,441,000
1909	46,120,000		

Statistics for the same period in West Pennsylvania, West Virginia and Ohio are as follows:

1917	$61,462,000	1913	$47,582,000
1916	40,896,000	1912	27,603,000
1915	38,529,000	1911	45,963,000
1914	42,553,000	1910	23,650,000

Fritzinger Re-elected at Jersey Meeting

John H. Fritzinger, of Perth Amboy, N. J., superintendent of the Lorlliards plant of the National Fireproofing Co., was re-elected president of the Monmouth Manufacturers' Association at the meeting of that organization held in Keyport, N. J., on May 2. The other officers elected were. First vice-president, B. K. Eskensen, of the Matawan Tile Company; second vice-president, J. Mahler, Matawan; treasurer, F. A. Cater, of the J. C. T. Co., of Keyport; secretary, C. E. Watrous, of the Munning-Loeb Co., of Matawan.

At the opening of the banquet President Fritzinger called upon Secretary Watrous to act as toastmaster, which position the latter filled to perfection. Several interesting speeches were given and a pleasing entertainment presented.

At the business session matters affecting manufacturing operation in the different plants were discussed. Conditions were reported as being good for war times and the opinion prevailed that the conflict will have no great bearing on the clay industry of the Raritan River section of New Jersey.

The Monmouth Manufacturers' Association has completed one year of earnest endeavor and has accomplished a great amount of good work. Under the leadership of President Fritzinger it has striven for many reforms affecting shipping and other matters pertinent to the industry. Many new members have been added to the association's roll, four being elected at the last meeting.

Another active year has been planned by the organization in the way of bettering manufacturing conditions as well as the problems of transportation.

Hysteria Cannot Unsettle This Company

"More Business Than Usual"—expansion rather than retrenchment—has been adopted as the watchword of the Wisconsin Lime & Cement Co., of Chicago, Ill., and is reflected in the additions which it is making to its sales offices in the Chamber of Commerce Building. The company has secured the office adjoining its present quarters and has started to erect another face brick display room. Already many of the panels are in position, set off to good advantage by the trimming of green "Brocade" brick which is woven thru the entire exhibit. A spacious corner in the new display room has been sectioned off for the private office of the manager of the brick department, William H. Gifford, alais "Giff," thru whose efforts the sales of face brick have been boosted to such an extent that the old quarters have long since proved inadequate.

The main entrance to the office will be thru the new addition, which will make it necessary for those doing business with the Wisconsin Lime & Cement Co. to pass thru two brick display rooms before getting to the offices. This, according to Mr. Gifford, will be a big advantage—if they can't be signed up after seeing such beautiful examples of brickwork as are displayed in those two rooms, they don't want brick—that's all. The company now occupies, with the exception of one office, the entire half of the sixth floor of the Chamber of Commerce Building.

The $7,000,000,000 "Liberty" Loan

The seven billion war loan of the United States involves a sum so vast that no mind can easily comprehend its significance in ordinary terms. A well known mathematician has figured out that if $240 were contributed every second it would take nearly a year to raise the war loan aggregate of $7,000,000,000. If $1,000,000 were contributed every working day the total amount would still be shy quite a sum as it approached its twentieth year of accumulation. Put another way, the loan amounts to $70 for every man, woman and child in the United States, and the man of average income will be called upon to furnish the bulk of it.



P. S. Trowbridge, General Superintendent of the Hydraulic-Press Brick Company, St. Louis, Mo., Telling the Visitors How the Employes Purchased a Copy of "Old Glory" for Each Factory and Erected the Flags on Poles Furnished by the Company

DISPATCH STAMPS HANDLING *of* COST PROBLEM *by* INSTITUTE

Paving Brick Manufacturers Hear Final Report of Cost Committee at St. Louis Meeting Held on May 8 and 9

WITH PORTSMOUTH, OHIO, as the starting point and St. Louis, Mo., marking the finish, with a period of approximately one year intervening, the Institute of Paving Brick Manufacturers has established a record in the matter of handling the cost accounting problem that is likely to go down in clayworking history as a most laudable accomplishment.

Last April for the first time officially, the Institute took up the consideration of cost accounting with the result that a committee was appointed with instructions to prepare a report to be submitted at the next meeting. This meeting, it so happened, took place the following July, at Alton, Ill., where no business session was held, due to the small attendance. However, the committee made its report at the annual meeting of the Institute in Cleveland last December and such action was taken at that time as to set in motion efficient machinery for the accomplishment of a cost accounting analysis of this particular branch of the industry.

FOUR MONTHS WORKING ON REPORT

Since December this machinery has been working, turning out a comprehensive report on cost finding. Mr. Burr, identified with a Cleveland concern of accountants, has been the principal factor in this work, visiting not less than six of the larger paving brick plants in different parts of the country. Mr. Burr read his report at the St. Louis meeting on May 8. It might be said that this report has been multigraphed and bound in a very neat, attractive form for the benefit of those members of the Institute who believe the subject of sufficient importance to part with $50 for a copy. Already a sufficient number of the manufacturers have indicated their desire to take a copy of the report, to pay for the entire expense of the investigation. This is a very encouraging fact and means that any further sale of copies will strengthen the treasury of the Institute in proportion to the number disposed of. It must be remembered that the more money the Institute has at its disposal the more it will be able to accomplish in the matter of solving the various important problems for the members. As was announced, the meeting (which was known as the semi-annual gathering) convened on May 8, the morning being given over to committee meetings and the afternoon to a regular session. Upon President Fred R. Kanengeiser calling for order, the minutes of the previous meeting, held in Cleveland on December 5 and 6, were read. These were approved, following which a report of the executive committee was presented.

NEXT MEETING AT ZANESVILLE

The program committee then made its report which was to the effect that Zanesville, Ohio, had been chosen as the next meeting place and that December 4 and 5

were the dates selected. Zanesville is one of the few clay working centers in which a large variety of ware is manufactured. The manufacture of most anything that is made from clay can be seen in this Ohio city, and an interesting program of plant inspection is being planned for the Institute gathering along toward the end of the year.

Some of the finest art pottery is made in Zanesville as well as any varieties of the rougher clay products all of which will be interesting to the members.

STULL MADE CHAIRMAN NOMENCLATURE COMMITTEE

At this point the chairman took occasion to appoint a new head of the committee on nomenclature. No better man could be found than R. T. Stull, formerly head of the ceramics department of the University of Illinois, so he was chosen. Mr. Stull very kindly accepted the appointment to the delight of the members.

E. T. Lenum, of Wilmington, Del., was scheduled to read a paper on "The Use of Explosives in Shale Quarrying," but owing to the fact that it was impossible for him to be present, C. B. Willis read this paper. A very interesting discussion on the use of explosives followed, to the edification of all present. Eben Rodgers, in the absence of Robert Keplinger, who was to have talked on "Dies," but who was ill, led a discussion on coal handling. Any one who has ever been on the Alton (Ill.) Brick Company's paving brick plant knows that Mr. Rodgers is capable of discussing this subject in a most authoritative manner. In a report of the Alton meeting of the Institute, the July 18, 1916, issue of "Brick and Clay Record" mentions this conveyor system and says:

"A feature of the plant is its coal distributing system. All of the fuel used is unloaded at one point and distributed by means of overhead conveyors, hung high in the air, to the producers and to the power plant."

Mr. Rodgers went into some detail concerning this coal handling system and when he sat down a very enlightening discussion followed. Various members told of their experiences with this problem, one of the members stating that he was now installing a new system for handling fuel on his plant. He said he was building



The Meyer Brothers (Harry L. and J. C., both of the Alton Brick Company) Did Not Allow the Joys of the Inspection Trip to Interfere with Serious Business for One Moment

a new tipple and that he was planning to use the transfer cars in the evening after they had finished their day's work, to distribute the coal from the point where the railroad cars were unloaded, to the kilns.

When this discussion had been finished, Eben came up to "bat" again with a paper on "Electric Drives." We say a paper; but the fact is Mr. Rodgers' remarks took the form of an oral presentation of the subject. Having



A Happy Quartet of Live Wire Institute Members. "Mac," Secretary of the Institute, but Better Known as Assistant Secretary of the N. P. B. M. A., and W. H. Lucktenberg Are Here Seen Trying to Hold Down a Big Sewer Pipe at the Evens and Howard Plant, While R. T. Stull Is Trying to Assume a Dignified Pose for the Camera Man

had considerable experience with electric drives, he was well prepared to talk about them and in his usual big-hearted fashion, showed a willingness to go into any phase of the subject on which information was desired. This ended the afternoon session.

BREAK BREAD TOGETHER

No report of this semi-annual gathering would be complete without a word concerning the dinner which was held on the evening of the eighth. Most of the members participated in this feature of the program, enjoying everything from soup to nuts. When the last of the viands had been disposed of, Harry B. Haws, a member of the Missouri state legislature, from St. Louis, cleared his throat and proceeded to address the gathering on the importance of road legislation. Mr. Haws has won a place in the heart of every one interested in good roads in Missouri, having been the author of two or three important bills which have been passed and which deal with the road problems of the "Show Me State." Mr. Haws described in a vivid manner some of the characters with whom he was forced to come in contact because of the nature of his work in the legislature and because of his interest in good roads. He told of an experience with a member from one of the districts in the Ozarks, who had come to a large town for the first time. This man, it seems, was a farmer and when he was shown to his room in the hotel he began to look about and spied the bath tub. A friend who accompanied him showed him how to operate the warm and cold water so as to get the desired temperature in the contents of the tub. The man from the Ozarks, after contemplating this evidence of civilization for a few minutes, said, (this was on Thursday): "My, how I wish it was Saturday."

When Mr. Haws had finished his address, J. C. Travilla, a prominent local road engineer, made some remarks

about the different types of road materials, which were received with interest by the members.

INSPECT LOCAL PLANTS

When the last late riser had finished his breakfast on the following morning, automobiles took the members upon a tour of inspection to some of the St. Louis clay plants, a feature of the meeting which had been announced and anticipated.

The Hydraulic-Press Brick Company's plants constituted the first stop and when the cars came to a halt outside the plant office, the members found P. S. Trowbridge, general superintendent of the plants, in readiness to receive them. In his usual painstaking and exact manner, Mr. Trowbridge led the visitors around thru the maze of factories, beginning at the so-called "common" brick plant, and winding up with the plant in which rough textures are made almost exclusively. The party included a visit to the paving brick plant, otherwise known as No. 11, which has a capacity of 100,000 per day. Some detailed information concerning this plant together with the other factories of the Hydraulic-Press Brick Company was given in the September 5 issue of "Brick and Clay Record," in connection with the report of the summer meeting of the American Ceramic Society.

From the Hydraulic plants the visitors paid a flying visit to the Evens and Howard Company and from there went to the Laclede-Christy Clay Products Company. The plants of both of these concerns were fully described in the issue of "Brick and Clay Record" above mentioned, so no further details will be given at this time, except to say that the visitors were very much interested in what they saw and appreciated the way in which they were conducted thru the factories.

Before the party finally broke up, it paid a visit to the downtown office of the Hydraulic-Press Brick Company, where perhaps the most beautiful display of face brick in the country is located. After admiring the many textures and colors of the exhibit, the party left for the hotel.

Pennsylvania Face Brick Makers Meet

War conditions and the increased cost of materials and labor were two of the important subjects discussed by the representatives of thirty brick manufacturers who attended the convention recently held in Reading by the Face Brick Manufacturers' Association of Eastern Pennsylvania.

A warning was issued by the manufacturers that there is no limit to the price to which brick may soar in the next few months, because of the demands for increased wages and the advance in the price of coal. It was reported that the demand being made on industrial plants for increased outputs is resulting in the erection of many large additions to factories which are requiring great quantities of brick.

J. C. Black, of Buffalo, chairman of the Pennsylvania association, presided over the sessions of the convention. Among the visitors at the convention was R. D. T. Hollowell, of Pittsburgh, secretary of the American Face Brick Manufacturers' Association.

All the delegates were the guests of the Glen-Gery Brick Company, which operates several large plants in Berks County, Pa., at a luncheon in the Hotel Berkshire, and after luncheon the brick manufacturers inspected the company's new display room. Buffalo, N. Y., was selected as the next convention city.

Ceramic Society Announces Summer Meeting

Preliminary plans for the summer session of the American Ceramic Society in southern and central New York have been completed by the committee in charge, according to an announcement received from Edward Orton, Jr., Secretary. The itinerary, as thus far planned, provides for assembly Monday, July 2, at 8 p. m., at Hornell, N. Y., for the evening session. On the following day a trip by stage will be made to Alfred to visit the New York State School of Clay Working and Ceramics, and from here the society will go by train to Corning where a visit to a glass plant will be made in the evening. Wednesday, according to the tentative schedule, will also be spent in Corning, visits being made to terra cotta, clay, and glass plants, after which the Society will travel to Geneva. N. Y. Thursday, brick, electric porcelain and enameling plants at Canadaigua, Victor, and Rochester will be visited, while on Friday, July 6, plants at Rochester, Charlotte, and vicinity will be investigated.

By virtue of this early notice, it is hoped that members of the Society will be able to arrange their vacations so as to take part in the program.

Big Fire Brick Plant Nearing Completion

Constructional work on the large fire brick plant being erected by the American Refractories Company, at Baltimore, Md., is progressing rapidly and it is hoped that operations will commence shortly. This plant, which is to manufacture magnesite brick and which is being built under the supervision of A. F. Greaves-Walker, the author of many valuable articles which have appeared in past issues of "Brick and Clay Record," is the first magnesite brick establishment, it is said, on the Atlantic seaboard. A force of four hundred men has been constantly at work at the site of the new industry since the building operations were started early in the spring. When the plant, which will cost $300,000 to erect, is completed, 30,000 brick a day will be made. However, it is expected the capacity of the plant will be overtaxed at the outset and that within a short time additions will have to be made which will materially increase its production.

Cost of Delivering Brick

A very interesting study has just been completed in Washington, D. C., by the bureau of census at the request of the secretary of commerce, of cartage costs among different business interests.

Answering the questions of the investigators, four brick companies reported having gross sales amounting to $410,572, of which it was found that $81,849 was the cost of delivery, or 19.9 per cent. of the total.

The brick company which reported the maximum percentage for delivery cost had gross sales aggregating $251,519, while its delivery cost amounted to $67,821, or 27 per cent. The concern reporting the minimum cost for delivery had sales aggregating $100,425, while its delivery costs totaled only $5,537, or 5.5 per cent.

Superintendents! Attention Please!!

We will pay real money for a description and drawings of time and labor saving ideas you use, if you will send them in.

Be Big Enough to Help the Other Fellow.

A BUSINESS CLASSIFICATION *of* CURRENT LEGAL DECISIONS

In This New Department is Presented the Gist of Those Decisions Believed to be of Interest to Our Readers

BEGINNING with this issue, "Brick and Clay Record" will publish in every other issue a department called "A Business Classification of Current Legal Decisions," in which it will present, in concise paragraphs, the gist of current legal decisions on credit and commercial cases.

That the present system of recording legal decisions solely for the purpose of placing the matter in the hands of the legal profession is entirely unsuited and inadequate to the needs of the modern business man, is a recognized fact. Only too often he, who cannot plead ignorance of the rules established by the courts for the control and regulation of his business, is compelled to learn what these rules are after the termination of long and expensive litigation.

The service which "Brick and Clay Record" extends to its readers in this new department is designed to supply the need of clay products manufacturers and dealers for information about current legal decisions which influence their businesses, by making available such information at the earliest possible moment after the decisions are filed It will also be a part of the work of this department to answer any questions which our readers may ask about the legal status of any credit problem with which they may be confronted.

The decisions which are summarized in the pointed paragraphs that follow have to do for the most part with credit and commercial transactions, and are therefore of great value to our readers.

General language of contracts must be construed with reference to the fitness of the subject matter and person.—Pitt Construction Company vs. City of Dayton, 237 F. (U. S.) 305.

The rendering of a bill and repeated demands for payment, which were refused by the mere silence of defendant, does not establish an account stated.—United Iron Works vs. Rathskeller Company, 161 P. (Wash.) 1197.

A composition in bankruptcy proceedings against the maker of notes did not discharge the indorsers on the notes, the release being effected by operation of law, and not by consent of the parties.—Silverman vs. Rubenstein, 162 N. Y. S. 733.

Where plaintiff accepted in cash a check without noticing statements on each side thereof that it was in full payment of the account, there was no accord and satisfaction.—Stoddard vs. Post Express Printing Company of Rochester, 162 N. Y. S. 839.

Where one party to an executory contract prevents the performance of it or puts it out of his own power to perform, he commits a breach of the contracts relieving the other party from the obligation of full performance on his part.—Rosenthal Paper Company vs. National Folding Box and Paper Company, 162 N. Y. S. 814.

Where one of two accommodation makers of a note before the payee bank had advanced money thereon notified the bank that he desired to withdraw from the note, he did not become a cosurety upon the note, and his release did not release the other accommodation maker.—First State Bank of Teague vs. Hare, 190 S. W. (Texas) 1113.

Plaintiff represented that a stock of goods which he offered in exchange for other property was of the invoice value of $12,000. It is held that the expression "invoice value" should be construed as having reference to the cost price for which the seller invoiced the goods to the purchaser, and not to their actual value.—Knopfler vs. Flynn, 160 N. Y. (Minn.) 860.

That the maker of a note received therefor a transfer of the payee's business, with a covenant that the payee would not do business in that neighborhood, which covenant was broken, is not a defense in action on the note, as showing failure of consideration; the covenant being an independent one, enforceable only in a separate suit.—Pinto vs. Pulidora, 162 N. Y. S. 736.

The creditors of an insolvent bank had the right, not only to subject its directors as stockholders and the other stockholders to their statutory double liability, but had the right to seek indemnity from the directors if they had been guilty of negligence in the management of the bank, and such negligence resulted in loss to the creditors.—Caldwell vs. Ryan, 190, S. W. (Ky.) 1078.

Where a promissory note is given in settlement of an open account, without an express agreement that the note shall extinguish the pre-existing debt, it is a condition precedent to a final judgment upon the account that the note be surrendered to the maker, or accounted for by showing that it is not in any event enforceable against him.—Standard Cooperage Company vs. O'Neill, 91 S. E. (Ga.) 82.

Where plaintiff concealed true value of express packages and paid a lower rate upon an agreed valuation, the company's rates being filed as required by Interstate Commerce Act, plaintiff could not recover true value from express company, where goods were stolen by its agent.—D'Utassy vs. Barrett, 114 N. E. (N. Y.) 786.

A bankrupt's discharge will not be denied on the ground that he made extended representations for the purpose of securing credit relied on an incorrect statement made two years before by the bankrupt to a commercial agent; the statement not having been made in contemplation of securing credit, and the creditor having failed to make additional inquiry.—In re Kean, 237 F. (U. S.) 682.

The directors of a corporation before its dissolution do not, by virtue of their office, hold or possess any

(*Continued on Page* 1073)

USE *of* EXPLOSIVES *in* QUARRYING SHALE

How to Place and Set Off Shots for Various Kinds of Work and the Proper Explosives to Employ

By C. B. Willis

Read Before the Institute of Paving Brick Manufacturers at Its Semi-Annual Meeting Held in St. Louis, May 8 and 9.

ASIDE FROM THE ACTUAL MINING or removing of clay and shale there are several uses to which explosives can be advantageously applied in connection with the digging of clays.

Some of these uses are for stripping overburden, removing boulders and ditching wet pits. In open pits probably the greatest difficulty the operator faces is the matter of stripping. Where the stripping has considerable thickness and a steam shovel is employed for this work explosives can be used in removing stumps or splitting them by light charges so that the machine can lift them easily; in the stripping and loosening frozen or hardpan strata so that the machine can operate with the least exertion.

By the use of the low grade explosives it has been proved that hardpan soils can be shattered very economically. The method of placing the charges for this work depends to a large extent upon local conditions. If the soil to be shattered is thick, charges must be loaded well toward the bottom of same and loaded sufficiently heavy to shatter the entire hardpan strata.

If the hardpan is of a thin layer, say from eighteen inches to two feet in thickness small charges placed in the center of the strata and spaced from six to eight feet apart will shatter it sufficiently for the shovel to remove it without difficulty.

Where a small amount of stripping is encountered and the clay strata is thin it has been found that such clay can be removed to advantage by working the clay up to the face of the overburden and by using dynamite to throw the overburden into the worked out pit. For this work small charges of dynamite should be used in holes spaced close together and near the face. In such shooting the best advantages are obtained by using a blasting machine and firing several charges at once.

DITCHING WET PITS WITH HIGH GRADE EXPLOSIVE

In using explosives for ditching wet pits two methods may be employed, one of which is by the use of a high-grade dynamite, depending on one blasting cap to fire a large number of holes. This manner is feasible only where the ground thru which the ditch is to be constructed is wet and warm. The practice is to prepare a number of holes with an iron bar, the depth to depend on the depth of the ditch required.

For example, if a ditch three feet deep and from six to eight feet top width is required, holes would be made not over two feet deep spaced eighteen inches apart in the running line of the ditch, each hole to be loaded with one cartridge of fifty per cent. straight nitroglycerin dynamite. When the holes have been loaded the required distance, prime an extra cartridge of dynamite and load it in any hole which has already been charged, this hole to be located near the center if possible. When this cartridge is exploded the entire line will be exploded by the propagation of the explosive wave from one hole to another.

In attempting to blast in this manner it should be very carefully noted that the proper grade of explosive must be employed and the ground wet and warm. The reasons for this are that only a high grade of nitroglycerin dynamite, which is the most sensitive dynamite manufactured, will detonate when applying this principle, and that this grade of dynamite freezes very easily, the actual freezing point being 45° Fahr., and when frozen is hard to explode.

It has also been proven that this method will not work in dry ground as the water in the soil works as a blanket to hold the explosive wave to a level with the next hole. Dry ground acts as a cushion against the next cartridge.

USING A LOW GRADE DYNAMITE

The second method is by the use of a lower grade low-freezing dynamite and a blasting machine. The holes are spaced in much the same manner but are made a little deeper and an electric blasting cap must be loaded in each hole, the number of holes to be fired depending upon the capacity of the blasting machine employed. This method of firing is somewhat costlier than the propagation method previously described.

In the actual digging of the shale or clay, explosives play a very important part. The method of blasting and the explosive used depends entirely upon the nature of shale and the height of the face. Usually for shallow faces and flat stratification the best practice is to punch vertical holes from the top of the bench. These should be placed back from the face a distance slightly greater than the depth of cut for work up to seven feet and apart an equal distance. For deeper work the spacing can be increased.

As a rough estimate, the spacing back and apart of holes on banks from fourteen to twenty feet high is one-half foot for each foot of height. It is a good practice to drill the holes well below the pit floor. This will prevent a shot blowing out at the bottom and will insure a more heaving action resulting in the material being more thoroly mixed. A twenty to forty per cent. low freezing dynamite is best for this work.

SHOOTING SHALE WITH HORIZONTAL CHARGES

Some shales, especially those having a dip, are best shot down by the use of horizontal holes, sometimes as snake holes, made into the face near the level of the floor. Where the nature of the shale will permit, these snake holes should be sprung by exploding several cartridges of dynamite in the back of the hole without tamping. This will permit the placing of the charge in a very compact manner and where the hardest work is to be done.

On faces of twenty-five feet or higher the use of larger bore holes is desirable to promote better distribution of the charge and reduce the cost of drilling and loading and overcoming the necessity of springing. For preparing such holes a blast hole drill, commonly called a well drill, is used. Such a drill should be fitted with a 4 or 4½-inch bit. The spacing of these holes depends, to a large extent, upon the depth of the strata. For a twenty-five-foot strata the holes spaced back ten and twenty feet apart will generally give the best results. For deeper faces the holes can be spaced back further and further apart. The maximum spacing for any depth or face is usually twenty-five feet and often twenty feet.

There are two methods of loading these holes. One is to load the hole with explosives solidly up to a certain depth. The other is to break the charge where a continuous charge of dynamite is too heavy. The method of breaking the charge is to load a certain quantity in the bottom of the hole, priming same with an electric blasting cap, load in tamping until the hole is raised to a depth where the second charge is to be inserted, load in the required amount of explosive, prime with an electric blasting cap, and then tamp the hole to the collar.

One problem coming under my attention was a thirty-foot face of comparatively loose shale which the operator was endeavoring to remove with a steam shovel. This shale was underlaid with a two-foot strata of wet clay, which had resisted all methods to blast by vertical loading, and which interfered with the operation of the shovel to the extent that when the wet clay was removed it would permit the dryer shale to slide and cover up the shovel.

This customer's problem was very effectively solved by punching holes at an angle of forty-five degrees into the wet clay, these holes spaced two feet apart, loaded with two cartridges of forty per cent. low freezing dynamite, and fired by electricity. It was found that this would throw out the wet strata and shake the material above sufficiently to allow it to slide. Its removal by the machine was then an easy problem.

DIGGING PLASTIC CLAYS

The method used in digging plastic clays is very similar to the method employed in stripping the overburden. Very often it develops that plastic clays differ, the top strata being of a different nature from the bottom strata and where this condition exists the use of explosives is beneficial in mixing the two stratas.

It sometimes develops that loose boulders are encountered and blasting will not only loosen the hard clay but materially assist in getting out the boulders and sending the clay to the plant in better condition. The best results can be secured in this class of work by blasting when the ground is dry.

Some plastic clays contain hard pebbles which must be removed and where that condition exists the use of explosives is not recommended as it makes the removing of the pebbles a more difficult proposition.

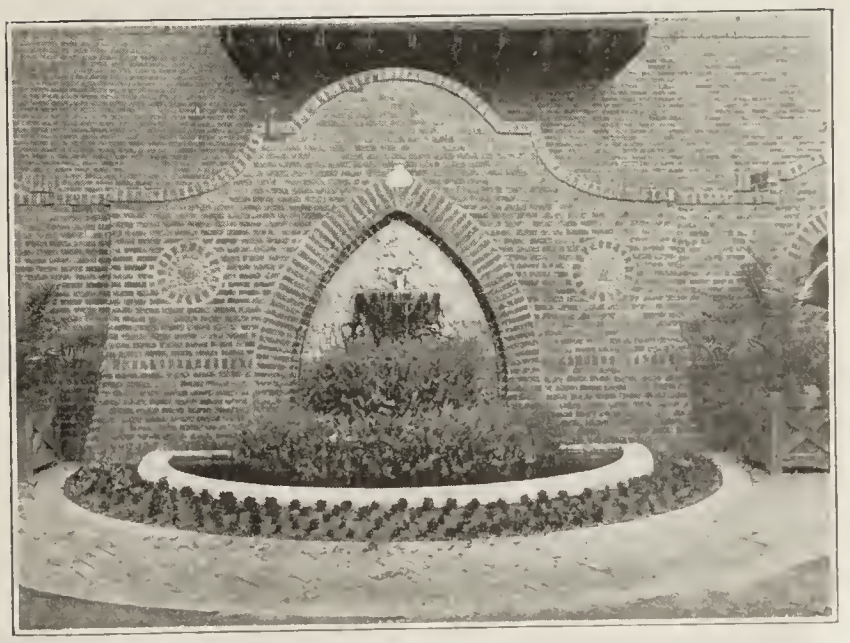
MINING FLINT CLAYS

Mining flint clays is practiced in much the same way as coal mining, using horizontal holes spaced according to the height and face of the rooms. The method consists usually of a breaking-in shot near the center and bored at an angle, then the rib and slab shots to straighten up the face. The usual method is for these shots to carry a burden of from three to four feet.

For this work it was formerly the practice to use blasting powder but recent developments have proved that certain grades of higher explosives are better adapted.

ARTISTIC BRICK WORK *in an* OPEN AIR CAFE





PROMINENT SOUTHWEST ARCHITECTS, USING BURNED CLAY, PRODUCE PARTICULARLY PLEASING EFFECT

While Virtually a Rathskellar, the Above Illustrations Are Views of a Refreshment Station Located Above Ground and in the Rear Court of the Brazos Hotel, Houston, Tex. At the Extreme End of the Court is the Fountain (Shown on the Right) Which Has Been Considered by Experts to be a Very Superior Piece of Brickwork. B. Mifflin Hood Brick Co., Atlanta, Ga., Furnished the Material for This Work.

The GENERAL MANAGER

gets a few tips concerning

FINANCIAL STATEMENTS

A Heart Oppressed by a Feeling of Failure is Made Glad by a Startling Discovery

By G. W. Greenwood, M. A. (Oxon)

Secretary, United Fire Brick Company, Uniontown, Pa.

THE GENERAL MANAGER opened a drawer of his desk and pulled out the report for the third quarter—the report which had so dismayed him at the outset of his career in his new position. He did not need to look at it, however—at least not at the first three pages, showing the Cayley plant with its profit of $20,000, the Bennett with



He Had Never Forgotten Those Results Since His First Reading of Them, Several Weeks Before, and Each Time He Recalled Them It Was With a Sudden Sinking Feeling, Such As Sometimes Comes Over One When An Elevator Makes a Quick Descent

$10,000, and next the Ardent plant, during the period when he was superintendent, with a bare $2,000. He had never forgotten these results since his first reading of them, several weeks before, and each time he recalled them it was with a sudden sinking feeling, such as sometimes comes over one when an elevator makes a quick descent. At times when awakened at night by some chance sound, his mind would revert to these ominous figures and he would spend a wakeful hour or more in futile worry. During the day, he could find refuge in ceaseless activity.

Even then, at times, the shadow of a cloud would hang over him, especially when his little five-year-old boy would come to the office—the entire six-story building where the offices were located being comprehensively referred to by the adoring boy as "father's office." On these visits, the little fellow would stand with eager eyes, hoping for an invitation to share in the activities. The men showed him how to run an adding machine, or to tinker with a calculating device; the girls showed him how to spell his name in capitals on a typewriter, while "Jimmie" the office boy, let him practice with a rubber stamp on the backs of envelopes, and told him wonderful stories, those about the bats being most interesting. One time Mr. Sellers even let him talk into a dictating machine and then listen to what he had said. Everyone in the establishment knew who was wanted when a meek little voice would ask over the phone, "Please may I speak with father?"

Secretly, the boy felt the greatest admiration for "Jimmie," and would watch him with fascination as he would go from desk to desk, collecting and distributing papers, answering phone calls, summoning men to their desk phones, politely receiving callers and directing them to the proper persons for them to see. Next to his father, he considered "Jimmie" the most valuable member of the office force.

A DISCOURAGING REMINDER

And father felt that any effort he could possibly put forth would be well repaid if he could but fill the important post which his little son so proudly claimed he was occupying. But a profit of only $2,000 for the Ardent plant during the last quarter when he was superintendent!

Just then Barnes came in—he had asked the heads of departments to dispense with the formality of knocking—therefore he had no time to slip the reports back into the drawer. Noticing them, Barnes remarked, "Are you getting anxious to see how the present quarter is going to turn out?"

"Well, I will be interested, of course, since it will be my

first quarter in this position," he confessed truthfully, altho that was far from what had been on his mind.

"It will be another month yet before we will have any figures, but according to the nature of the case the Bennett will about hold its own on account of having to buy coal for it, the Cayley plant will slump in spite of its having been charged with coal at practically the cost of mining it, but the Ardent plant will go up like a sky-rocket."

The general manager laughed a trifle nervously as he said, "I'm glad my leaving the plant is going to help the report so materially, but at the same time I cannot help wondering in what particular your preliminary reports indicate that it will show up better this quarter than during the third quarter. The output appears, if anything, to be less, so there must be a decided reduction somewhere in operating costs."

He was relieved that, since the subject had come up so naturally, and incidentally, he had paved the way for a discussion of the report without having disclosed his anxiety. He had wanted all along to have a heart-to-heart talk with Barnes about it, but he dared not come out bluntly and say so. Now that he was in for it, he braced himself to face the music.

BARNES SPRINGS ANOTHER SURPRISE

Barnes commenced to fumble in his pocket and, seeing this, the G. M. hastily rescued his stock of pencils, leaving only a battered ruler to be sacrificed. Having secured the ruler, Barnes cut a notch and responded. "You can bet your neck there are no reductions in operating costs. Everything has gone up. Everything except postage stamps; even government stamped envelopes have advanced. So have labor, sand, explosives, oil, repair parts, fuel, etc. Fortunately, brick have been going up, too. We are like the boat in the river when the water had risen to flood stage on account of heavy rains. The boat was loaded heavily, so that it was down deep in the water. Seeing this, one of the passengers exclaimed, 'If the river rises another foot, we'll sink.' Only by our rising with the flood have we been able to keep from sinking. The real profit will be what one might call an unearned increment. It will be inherited from the previous quarter."

"Mr. Barnes, if you were to tell me that two men could sit in the house on a rainy day, and each make money swapping jack knives with each other, I wouldn't dispute your statement, after the paradoxical results you have demonstrated during the past few weeks. But still I fail to see how a quarter which shows only a profit of $2,000 can leave an inheritance which will enrich the following quarter. Go ahead. I'm ready for the next performance."

EXPLAINING THE PARADOX

Having converted the ruler into a hack saw, and starting to shave off the notches one by one, Barnes replied smilingly, "I hope you don't put me in the same class as the man who takes eggs out of an empty hat, but of course it is possible for a man to bet on an election and to make a profit out of it no matter which way the election turns out. You recall that the Ardent plant began the third quarter with practically no stock and at the close the sheds were full to the hilt?"

The G. M. nodded.

"This big stock was inventoried at cost prices, and the cost prices were lower than they have been for years. During the present this stock has been selling, of course, at current advanced prices, as well as that which the plant has been making right along, so that the plant will show up like a bushel of potatoes in a jeweler's window."

"I fear there are many places in the world today where your comparison of values would apply only too literally," commented the G. M., "but from your explanations it would appear that any plant may be losing money and yet show apparently a satisfactory profit, or run profitably and for the time being even show a loss. Are these conditions possible?"

Turning over the ruler and starting to hack away at the opposite edge, Barnes replied, "You're making progress in



Taking His Hand and Looking Sideways Up Into His Face as They Walked Up the Path, He Said Eagerly, "Father, I Know What I Want You to Get Me For My Birthday When I Am Six"

accounting problems, all right. Of course, these false indications could not keep up forever, but they can exist long enough to fool a person good and proper. What did you think of the showing of the Merton plant?"

"Your remarks about being fooled by short term results certainly applies to me. To tell the honest truth, when I got as far as the Ardent plant and saw how it compared with the Cayley and Bennett reports which preceded it, I was so discouraged I quit. Anyway, as the Merton plant had burned down the latter part of the second quarter naturally the third quarter shows a loss."

So saying, the G. M. leafed thru the report to the page assigned the Merton plant and found that plant credited with a profit of $2,000.

A STARTLING DISCOVERY

"Gee whiz," he exclaimed, "this plant didn't turn a wheel during the third quarter, and yet it shows up as well as the Ardent plant, which ran full tilt. Let's burn them all down instead of operating them."

"That would work for a few weeks," agreed Barnes, trying to bore a hole thru the ruler with his knife. "Just as with the Ardent plant, the stock on hand at the beginning of the third quarter, following the fire, was inventoried at cost, and as sales were made and the brick shipped, the plant was credited with the net amount, f. o. b. cars at the plant, the difference between the inventory price and the selling price being a profit. This is orthodox bookkeeping, altho it doesn't seem reasonable for a plant to be credited with a profit it cannot have earned during the period covered by the report, or to be charged with an apparent loss which is unmerited."

"Why can't the plant be credited with the profit during the period when the brick are made? Wouldn't this be a good scheme?"

"Your plan would not work," declared Barnes, emphatically, with a vicious gouge into the inoffensive ruler. "It would require brick in stock to be inventoried at approximate selling prices, which would be an anticipation of profits. It would be equivalent to counting your brick before they are burned. A financial statement obtained by such methods would deceive instead of enlighten banks or commercial agencies which might be entitled to it. In their present form they may not show a profit always, altho it may fairly be earned. But when our reports do show a profit, it is an actual profit, not a paper one."

"Then tell me this. How do banks know what firms are making conservative statements and what ones are not? How do they know on what basis the figures are compiled? How can they tell that the inventories are not taken at inflated values, that profits are not anticipated, that eggs are not counted before they are hatched, or, as you express it, that the brick are not counted before they are burned?"

BARNES COMMENTS ON BANKING METHODS

Tossing the wreck of the ruler into the waste paper basket, Barnes arose and bluntly stated, "It's my guess that in many cases they do not know at all. Neither do they know if repairs and replacements are charged up to betterments and improvements, and a few other such devices used to manufacture a profit where none really exists. If I were a banker, I'd have someone to keep in actual touch with plants where the bank's money was invested, not merely to protect the investment, but to suggest the loan of additional capital where it was seen possible to employ it to advantage. For example, a plant by investing $5,000 in a locomotive, or an automatic dump, or a drying system for the utilization of waste heat, might save on a conservative basis $25 a day in labor or fuel. The bank could offer to lend the amount needed, provided the brick company would agree to establish a sinking fund of, say, $500 a month until the debt would be wiped out. Thus, they could make improvements at no cost to themselves, only I'd make sure it was a real improvement paying a high rate of profit, so that the investment would be wiped out promptly.

"I would look at statements not merely from a critical standpoint, but more from a constructive one. If a concern's annual sales amounted to $100,000, with terms thirty days, and the statement showed accounts receivable amounting to $35,000, I would think either that their credit man was asleep or that they were carrying a lot of dead accounts which they were afraid to charge off. In such a case I would ask for a statement of accounts ninety days old, or older, and for information as to why they were not being collected.

"If their inventory of stock on hand amounted to $25,000, which would be equivalent to three month's stock even at selling prices, I would think their selling organization needed to be gingered up, or that they were carrying a lot of dead stock which they might have a difficult time getting rid of, or that it was carried at too high figures. I would not only be from Missouri, but from Kansas—ready to be shown, and ready to help."

"If I ever get interested in a bank, other than a clay bank, Mr. Barnes, I'll want you as a member of the force. And now let's go home and call it a day."

Light of foot and light of heart, no longer oppressed by a feeling of failure, he entered the gateway of his home and his little boy ran to meet him. Taking his hand and looking sideways up into his face as they walked up the path, he said, eagerly, "Father, I know now what I want you to get me for my birthday when I am six. "Jimmie" says at one of the plants there are hundreds of red bats, and that when there is any excitement, they fly. Could you please get me one for my very own? They'd know at the plant what to feed it, wouldn't they?"

* * *

Southern Company Continues to Grow

Expanding from a corporation with a capital of $8,000 in 1908 to one whose capital stock is rated at $150,000 in 1917, and whose plant represents an investment of $250,000, is the remarkable record made by the Star Clay Products Company, of San Antonio, Texas, one of the most progressive clay products manufacturing companies in the South. Into every line of the interesting history of this company's growth are written progressiveness, integrity, foresight and administrative capacity.

The seed from which this extensive organization sprang was planted in 1908 in the form of a picturesque little pottery plant erected at Elmendorf, a suburb of San Antonio, the entire capacity of which was turned over to the production of beautiful Star pottery. Soon, thereafter, the capital was increased to $10,000, then $20,000, then $50,000 and finally boosted to its present mark of $150,000.

With the second increase in the capital stock, the manufacture of pottery was discontinued and the attention of the company turned to the production of fire brick and hollow tile.

Especially is the company featuring its fire clay hollow building tile, which is made from the same clay used in the manufacture of its fire brick, and to increase the sale of this product it has just published a very neatly compiled catalog, or booklet, picturing the many styles, shapes, and sizes of hollow ware which it manufactures and the different uses to which this product may be put. Sectional drawings illustrate the method of using hollow tile in the construction of lintels, fireproof floors and corners of buildings, besides showing the manner in which the tile are laid up in a building which has a twelve-inch wall on the lower story and an eight-inch wall above, and the formation of the blocks when a four-inch partition wall is bonded into an eight-inch outside wall.

Besides these drawings, the booklet contains some interesting information regarding the advantages of hollow tile construction and its cost.

According to J. R. Martin, secretary, treasurer and general manager of the Star Clay Products Company, business is good at the present time, with all indications pointing to the continuance of a heavy demand. Mr. Martin states that some very large and extensive improvements are being made to the company's plant at Elmendorf, chief among which is a fifty per cent. increase in its continuous kiln capacity.

* * *

Where Can I Serve Best?

Will I be of more service to my country in the prosecution of a successful war serving in the ranks at the front, or by taking my place alongside the vast number of men who will be compelled to remain at their posts to keep industry going? is the uppermost question in the mind of America's young manhood, as the grip of war tightens upon the United States.

From the experience of our allies, we know that five men at home are required to keep one man at the front, and to keep the factory fires burning. Action taken by

manufacturing companies thruout the country as to the manner of solving the question of which group their employes should join to be of the most service, varies to a large extent. One of America's largest manufacturing companies (not engaged in making clay products) has taken steps to handle this problem without disrupting its organization, which may be of interest. If one of its employes expresses a desire to join the colors, his position with the company is considered and the relative value of his work is determined. If, in the company's estimation, the work he is doing at home is of more service to the country than that he would perform in the ranks, he is so advised, but if his work is not highly specialized, if his position can readily be filled, he is encouraged in his patriotic desires and is given the fullest co-operation by the company.

THE PATRIOTISM OF THE TRENCHES

If, after thinking it over from all sides, you feel that your country needs you in the ranks more than in production, go, and God be with you. If the factory is running when you return your present job will still be yours.

THE PATRIOTISM OF PRODUCTION

Food is scarce and high. Every tile we make means more potatoes and oatmeal and beef and bacon for the army, and for the thousands of mothers and children made hungry by the war. It may be we are called to serve side by side with the farmers in the less dramatic but equally necessary and loyal army of production. If this is to be our part then we should also learn

THE PATRIOTISM OF SACRIFICE

How really patriotic are we anyway? How many dollars less will be spent for pie and cake and tobacco and summer drinks and styles and the movies, and be put instead into camp Y. M. C. A., Red Cross and other war relief work? Such real sacrifice is about the only sure evidence of loyalty those who stay at home can match against the offering of those who go.

However, we need not go outside the clayworking industry to find examples of highly constructive action taken along this line. An effective bulletin recently posted at the drain tile plant operated at Estherville, Iowa, by L. L. Bingham, which strikes a very patriotic note, is reproduced in connection with this item. It is concise and stirring, and serves to bring out forcibly the importance of one branch of the clay products industry in solving the food shortage problem and in keeping the boys at the front in fighting condition.

* * *

Ceramic Society Organizes Committee On Military Preparedness

The American Ceramic Society, at its annual meeting held in New York, March 5 to 8, authorized the formation of a committee on military and economic preparedness to co-operate with similar committees of other societies in giving to the council of national defense, in the present crisis, the fullest possible benefit of the expert knowledge that the country possesses. This committee is now organized and has begun its activity, having already offered its services to the national defense council and the national research council.

Edward Orton, Jr., of Columbus, Ohio, has been chosen chairman of the committee and A. V. Bleininger, of the Bureau of Standards, Pittsburgh, Pa., has been made vice-chairman. The committee has been divided into eight sub-committees which, with their chairmen, are as follows:

Abrasives: R. C. Purdy, Norton Company, Worcester, Mass.

Chemical Stone Ware: R. H. Minton, Metuchen, N. J.

Enameled Iron and Steel: R. D. Landrum, Harshaw, Fuller & Goodwin Co., Cleveland, Ohio.

Glass for Optical Purposes: C. H. Kerr, American Optical Co., Southbridge, Mass.

Hydraulic Cements: P. H. Bates, Bureau of Standards, Pittsburgh, Pa.

Porcelain, for Electrical Purposes, Spark Plugs, etc.: L. E. Barringer, General Electric Co., Schenectady, N. Y.

Raw Materials for the Ceramic Industries: A. S. Watts, Ohio State University, Columbus, Ohio.

Refractories: A. V. Bleininger, Bureau of Standards, Pittsburgh, Pa.

In order to place in the hands of the national research council and the council for national defense a classified list of the members of its organization who can contribute in any needed way for the upbuilding, alteration, or technical control of the ceramic industries under pressure of national need, the committee has taken a census of its members by means of a card which enabled the member to designate in which of the eight divisions, for which the sub-committees were appointed, he might be of the most service.

While the active sub-committees on the eight different headings listed above are necessarily limited to a few men who are in a position to get together for consultation, every member of the society who has knowledge affecting these particular divisions of ceramics will be made an associate member of the sub-committee working in that division in which he is the most skilled.

* * *

Defying the Demon Fire

Triumphs in brick construction are continually coming to hand, but it is doubtful if many are of more interest, or reveal the stability of brick construction better, than that of the Poinsett County Courthouse, at Harrisburg, Ark., which was gutted by flames during the week of May 12. This structure was the first brick building erected in that section, and in 1878 passed thru a very damaging fire. The contractors, however, in rebuilding the courthouse found the brick walls to be in excellent condition. They were twenty-four inches in thickness up to the second story and eighteen inches above, and formed a very substantial support for the reconstructed courthouse.

Again the demon fire visited the building and worked great destruction—and again the brick walls emerged from the engagement in such excellent condition that they will once more be used in the reconstruction of the courthouse. The Poinsett County Courthouse stands as a testimonial to the fire-resistant qualities of brick construction.

* * *

Cashing in on Advertising

The experience of the Glen-Gery Shale Brick Co., of Reading, Pa., in advertising its product can be pointed to as an indisputable example of the value of advertising in increasing the sale of face and common brick.

Two years ago this company started a series of car cards, showing pictures of well known buildings and industrial plants built of its brick and picturing colored

brick panels, capped with the slogan "100 to 1,000,000 quick!"

Various forms of novelty advertising were also employed and Glen-Gery "copy" always occupied a prominent position and substantial space in the local newspaper industrial sheets. Business directories and other mediums which circulated within a fifty-mile radius of Reading always contained a front-cover Glen-Gery display. At a recent Red Cross benefit, the Glen-Gery donation was in the form of red brick-shaped card-board boxes, which were used as candy containers and which carried the caption "A Glen-Gery Brick."

As a direct result of these various forms of advertising, the demand for the company's brick was swelled to such an extent that the capacity of its plant at Shoemakersville, Pa., was greatly over-taxed and, in order to relieve this factory, the company purchased the former Montello Brick Company's plant at Wyomissing, Pa. As a result of this expansion, the total output of the company was increased to 200,000 face and common brick daily.

In order to keep pace with the ever-increasing volume of business, the sales department, in need of larger quarters, removed its offices from the Colonial Trust Building to 22 North Fifth Street, at which place the offices and display rooms occupy the entire second floor. Needless to say, business is booming in spite of present difficult industrial conditions and the spring advertising campaign of the Glen-Gery Shale Brick Co. is in full sway.

* * *

Fireproofing Co. Chief Sees Boom Ahead

In an interview published in the May 13 issue of the Pittsburgh (Pa.) "Dispatch," W. D. Henry, president of the National Fireproofing Co., of Pittsburgh, stated that all indications point to a resumption of building which will result in the biggest building boom in the history of the country.

"During the last three years this country has accomplished, in financial and industrial progress, the equivalent of twenty-five years of normal effort," said Mr. Henry. "The general conditions brought about chiefly by the world war have caused the United States to become the financial center of the world—to rank first in agriculture, and have placed upon this country the burden of supplying the markets of the world, to a greater extent than ever before with almost every conceivable commodity, including locomotives and other railroad equipment, ships, foodstuffs, oil, dyes, minerals, chemicals and nearly all else required by man. As a result, all lines of manufacture have grown by leaps and bounds; business was never better, and we have more money in this country than we, a few years ago, ever dreamed of having.

"Advancement and expansion in specialized lines have been uniformly reflected in all industries, the two pronounced exceptions being in railroads and building. The inactivity of these has been mutually sympathetic, due unquestionably to the railroads' lack of support in the way of adequate freight rates. Of the two the building industry has been the first to show improvement.

"In the general building field small construction is going right along, and was never better. Large manufacturing concerns are putting up for their workmen houses in groups of 100 to 500, such operations being noticeable in the manufacturing districts, and in the coal regions where many new mines are being opened, making more miners' houses necessary.

"Unless there is some unlooked-for upheaval there will be but one outcome—the biggest building boom this country has ever experienced. We have been tremendously prosperous, and while the full force and effect of this prosperity may not be reflected immediately, it is bound to materialize. Men will be placing their surplus earnings in permanent investments, and land and houses offer the most natural advantages. Workingmen are constantly demanding better housing, and that means better building.

"It is my firm conviction that it will be years before building materials will be cheaper than they are now. Those who contemplate building will gain nothing by waiting, for those who are waiting for declines in prices of materials are going to be disappointed. General prosperity created existing conditions, and right now a tremendous and steadily growing inquiry is evident for materials which, at the present time, it is almost impossible to supply, owing to railroad conditions.

"When we stop to consider that the United States government is about to spend $7,000,000,000, it means wonders for the prosperity of the country. Practically all that money will find its way back into the pockets of the people of America. But with all this prosperity, present and future, the railroads and building have not benefited by it as they should, but they are going to. When I say the railroads have not prospered I speak in general terms. If they are given a chance a change for the better will be felt immediately, and the improvement will be correspondingly reflected in the building industry. That is why I so completely agree with those who so strongly advise all who think of building to build now. By so doing they will save money, for when the boom comes, as come it will, the cost of building will be higher."

Mr. Henry is in a position to gauge the building outlook accurately, and his view is that held by leading building authorities thruout the country.

* * *

Charles S. Edgar Killed by Fall

The sad news of the death of Charles S. Edgar, of Metuchen, N. J., has just been received in a letter from C. A. Bloomfield, president of the New Jersey Clay-Workers' Association. Mr. Bloomfield's letter, coming from the pen of one whose relation with Mr. Edgar have been cordial and intimate, so well expresses the sentiment of "Brick and Clay Record" in the loss of one whose efforts have been fruitful of much good in the clayworking industry, that it is reproduced here as the obituary notice of him who has been called from our midst.

"There passed out of this life on Wednesday, May 16, at McIntyre, Ga., Mr. Charles S. Edgar, of Metuchen, N. J.

"Mr. Edgar had been in perfect health until the day preceding his death, when he suffered a fall of about fifteen feet while superintending the construction of a new plant for the production of kaolin at that place.

"His death is a distinct loss, not only to Metuchen, but also to the different places where his plants are located. He was the most important factor in the United States in the production of kaolin and was known wherever clay was used. He had been successful in life and used his wealth not selfishly, but in unostentatiously doing good wherever he knew it was needed and doing it so quietly that no one but his Maker and he will know the extent of his charities.

"Twice he was offered the nomination for president of the New Jersey Clay-Workers' Association, but both times he declined, altho the nomination was equivalent to election."

LOOKING SQUARELY
at the TRANSPORTATION PROBLEM

Relief From Present Car Shortage Must Come Thru the Construction of More Permanent Roads

By Will P. Blair

Secretary of the National Paving Brick Manufacturers' Association

WITHOUT A SINGLE EXCEPTION, men engaged in a business requiring shipments by freight from one point to another during the past year have bitterly complained of the tardiness and ofttimes utter inability of the railroads to care for their needs. Thousands upon thousands of tons are just now awaiting the insistent demand for cars in which to load. Thousands of cars are standing in the outer yards awaiting their turn for placement on some unloading track, while others, patience and expensive delay no longer to be endured, are unloaded miles out of the city and the contents trucked to their destination.

What might have been, due to a far-sighted plan of railroad terminal facilities for cities that doubled and tripled their population in a decade, the yard plan, the trackage room, for cities of a few thousand that now have completely outgrown all preconceived proportions of growth, is idle to discuss.

Mines have been made idle, manufacturing plants have ceased operations for days, grain, so sadly needed, remains in farmers' cribs, and all business is disturbed. Reflecting results are felt in lessened efficiency on the one hand and higher prices for all purchases needed for our daily requirements on the other. Our whole industrial fabric is being sapped of the vitality that we need and upon which the great strength of the country rests, and upon which we must depend for continued ability to endure the coming strain.

There may be unscientific management, but railroad trouble is not all due to inefficient use of what they already have. It is due mainly to what they have not. It is a condition that can not be improved upon or added to within sufficient time to meet the exigencies that are put upon us.

PROGRESS OF WAR WILL INCREASE SHORTAGE

The United States Government feels the existence of this industrial condition by giving preferential right of way over railroads to commodities for direct and immediate war needs. As the necessities for war material become expanded the general industries of the country will be further disturbed by the increased use of present transportation facilities. This situation will surely become intensified by the great increase of crops so wisely urged upon the country, which must be moved if they are to serve the purpose of feeding the thousands now so anxiously hoping for a further lease of life thereby.

It is quite apparent that transportation is no longer a problem of mere convenience, nor is it one of merely commercial advantage. It is now a question of bread and meat and more. Upon it rests the hope of an early conclusion of the war. It is a question of vital and immediate concern for the salvation of the country, the guarantee of its ultimate endurance.

FROM WHERE SHALL RELIEF COME?

In what manner and how shall the relief come? Shall it be either a matter of debate or procrastination or shall it come at all. If we have been unable to deliver a short crop how shall we deliver a long one?

The United Press during the past winter sent out a dispatch from Columbus, Ind., evidently intended to appease the appetite of the reader in the comedy of the circumstances, but which bore a lesson so plain and impressive that the tragedy of present events ought to stir to action. Says the dispatch: "Providence has been kind to the southern Indiana farmers this winter in that once in a life-time the roads are frozen in a smooth condition, and taking advantage of such roads hogs are sent to market seventy-five miles away in an auto truck. The hogs so enjoy their ride to death that they go to sleep on the way."

We are not so helpless that we may expect to survive by merely putting the manna in our mouths. More is expected of us these days.

When Providence is kind enough to point out so particularly and exactly the way, why need we be either dense or stubborn—much less careless and indifferent.

MORE ROADS SOLUTION TO CRISIS

Rome fed a million people with slow moving ox carts over her roads. We have no ox carts, but we have fast moving trucks. We have no Roman road; in fact we have no roads. But we have sufficient stretches and patches to create confidence in our ability to build them. We do not have to await a providential smooth frozen surface. If progress in railroad building from the old iron banded wooden stringer thru stages of different guages up to the standard truck and schedule of movement is still inadequate to serve the public up to her needs, how much less has been our progress in highway building?

Our main traveled roads—at least our thru trunk highways—should bear the same reliability for the truck, horse, or gas propelled vehicle, as a railway track bears its loaded cars.

Evidence of the most convincing character as to the needed types of road is abundant upon which to exercise

judgment in the building of roads dependable for the most exacting and constant service. To hesitate over a program for immediate improving of such highways as will relieve the railroads of an excess of tonnage, to as rapidly extend mileage and connect stretches already in existence is to be guilty of a criminal neglect well nigh approaching treason.

True, all this is to sustain in virile condition the elements of national life and strength behind the firing line, but in no less degree can the highways be utilized in many eventualities for actual military requirements.

Nor can the vicissitudes of war lessen by a single farthing the value of the dollar now expended; it will be one of continuous worth in the peaceful days to come.

* * *

Society for Testing Materials to Meet

Announcement has been made that the twentieth annual meeting of the American Society for Testing Materials will be held in Atlantic City, N. J., beginning June 26 and continuing until June 29. The provisional program, which is subject to change, promises many interesting reports that will be of value to those interested in clay products. The entire afternoon of June 29 has been scheduled for reports and papers pertaining to ceramic products, the detailed program for that afternoon being as follows:

Report of Committee C-3: On Brick. Edward Orton, Jr., chairman.

Report of Committee C-4: On Clay and Cement Sewer Pipe. Rudolph Hering, chairman.

Report of Committee C-6: On Drain Tile. A. Marston, chairman.

The Failure of a 30-inch Tile Drain at Albert Lea, Minn. R. W. Crum.

Report of Committee C-8: On Refractories. A. V. Bleininger, chairman.

Suggested Improvements in the Manufacture of Silica Brick. C. E. Nesbitt and M. L. Bell.

Report of Committee C-10: On Hollow Building Tile. L. H. Provine, chairman.

* * *

Proper Depth of Drain Tile

In refuting a statement which had been made in a newspaper item, placing the proper depth of drain tile in any soil at five feet or under, R. A. Hart employed in the U. S. Drainage Service as senior drainage engineer, states: "This is not only erroneous but absolutely contrary to the principle enunciated by this office. In fact for years we have insisted that the tile drain should not be less than five feet in depth and the question of proper depth has been dwelt upon more than any other feature of drainage practice.

"In the U. S. Department Bulletin, No. 190, prepared in 1914, I make this statement: 'Drains should never be less than five feet deep, and experience has shown the depths of from six to eight feet to be much more efficient.' As a matter of fact, in the systems installed directly under the supervision of this office, drains less than six feet in depth have not been installed for years, while in some cases depths up to sixteen feet have been given. It is largely a matter of economics. Deep drains are so much more effective and far reaching that the extra cost is more than saved. The space of drains does not seem to vary as the depth, however."

A Powerful Paving Brick Ad.

Editorial comment on the following advertisement, published in a recent issue of the Seattle (Wash.) "Post-Intelligencer," and paid for by the Denny Renton Clay & Coal Co., of Seattle, is unnecessary. It is an admirable piece of copy that clinches the idea of economy in road construction—and it does not mince words or befuddle facts in stating the case of the brick pavement. It is another example of the excellent work the Denny Renton Clay & Coal Co. is doing on the Pacific Coast to advance the use of burned clay products.

Saving County Money

"King County has good roads. It must have more good roads. It must have a complete system of good roads. Only good roads should be found in any direction. But King County is in no condition to spend money lavishly and go in for good roads regardless of cost. It cannot continue to be indifferent to expense as it has too often been in the past. It must spend its money wisely and count the cost and make every dollar count. Ordinary business prudence prompts it. Common sense demands it."—Editorial in The Post-Intelligencer, April 1, 1917.

JUST SO

THEN WHY NOT COUNT THE COST OF CONCRETE ROADS?

Why shouldn't King County learn from the experience of Pierce County? In Pierce County a stretch of four and a half miles known as the "Valley Road" was paved with one-course Concrete, the job completed in December, 1913, at an original cost of $53,810.00. Within a few months this road was so full of holes that Pierce County had to spend $2,923.00 in filling them with Warrenite; and before one year had passed it became necessary to cover the whole road with an asphalt top at a cost to Pierce County of $38,663.00. In one year, therefore, the first year of its life, this Concrete road cost Pierce County $41,586.00 for repairs and resurfacing, making a total outlay, including first cost, of $95,396.00. All of which is disclosed by the public records of Pierce County.

But even this heavy expenditure didn't make it a good road. In 1916 Pierce County had to put on another "top" of roadamite at a cost of $3,030.56. So that, in less than three years, Pierce County has paid out $44,616.56 for repairs and resurfacing. Instead of getting a good road at the original cost of $53,810.00, the Valley Road has cost Pierce County a total of $98,426.56—AND IT ISN'T A GOOD ROAD YET.

Pierce County has had similar experiences with other Concrete roads, notably the "Hill Road," the original cost of which was $40,304.00, in December, 1913, and on which Pierce County has since spent $39,557 for repairs and resurfacing—a total cost in three years of $79,861.00.

"King County," as The Post-Intelligencer has truly said, "is in no condition to spend money lavishly and go in for good roads regardless of cost." Business prudence prompts and common sense demands consideration of the cost of up-keep and maintenance as well as of original cost.

Our guarantee of twenty years' good service stands behind roads paved with vitrified brick.

Denny Renton Clay & Coal Company

SEATTLE

In connection with the brick and clay products industries, the federal reserve board has the following to say about conditions:

"These industries seem to be working to the greatest extent practicable, and unfilled orders indicate a prosperous conditions. With an increased number of cars for shipment, the plants would be capable of turning out more tonnage."

"YOU'RE RIGHT," THEY SAY

Concerns and Publications Express Agreement With Sentiment Expressed in "More Business Than Usual" Editorial

IN AN EFFORT to popularize the slogan and spread the doctrine of "More Business Than Usual," "Brick and Clay Record" sent to the leading newspapers and magazines thruout the country a reprint of the editorial which appeared in the May 8 issue, bearing that caption and denouncing the wave of hysteria and indiscriminate economy which is sweeping over the country, menacing business activity and prosperity.

The response which has greeted our effort to establish the slogan "More Business Than Usual" has been exceedingly gratifying. Replies have been received from many of the papers and periodicals to which the editorial was sent, as well as letters from individuals who read it, complimenting the action taken by "Brick and Clay Record" in repelling the menacing forces of hysteria. From "The Outlook," one of America's leading weekly publications, came a letter expressing cordial agreement with the attitude and the thoughts expressed in "Brick and Clay Record's" editorial. However, it tempers its commendation of the action to defeat hysteria by the following statements:

"THE OUTLOOK" ADVISES SANE ECONOMY

"We think it ought also to be said, however, that the idea should not get abroad that it makes no difference what money is spent for. Manufacturing and producing should have in mind that which is needed and in a large sense, valuable, and rightful economy ought to be exercised as to make and buy things which are not needful or truly valuable—that is, articles of extravagance or luxury. The effort spent in making such articles should be spent in making things which are needful, and the old fallacy that to cut off any kind of manufacture or buying that injure business and put people out of work is answered by the fact that there is, or will be, plenty of productive work to be done by everybody at this time."

TEXAS PAPER REPRINTS EDITORIAL VERBATIM

So highly did the Houston (Tex.) "Chronicle" value the editorial which it received from "Brick and Clay Record" that it published it verbatim in its May 14 issue. Similarly other papers and magazines thruout the country have taken up the slogan of "More Business Than Usual" as their war cry with which to defeat a panic that might easily be brought on by the injudicious warnings of pessimists and unthinking politicians, as well as misinformed publications.

As it is so well expressed in a recent editorial appearing in a New Orleans (La.) "Item," a clipping of which we received in response to our letter, "there is a need for urgent economy, conservation, and larger production in *food,* because food is actually and abnormally scarce—not because there is any prospect of a lack of money to buy it. It is becoming so scarce, thru failure of crops and a vastly increased demand from abroad, that it threatens in some cases to get beyond the reach of small buying power. This, however, does not apply to other commodities. If everybody stopped buying what he is accustomed to buy and has the money to buy, general stagnation in almost every line of business would result. Panic and bankruptcy would be the inevitable rapid consequence of such action."

ELECTRICAL SOCIETY FOR "MORE BUSINESS"

Possibly one of the most interesting replies received during our campaign for the national adoption of the slogan "More Business Than Usual," was a declaration of principles from the Society for Electrical Development, promulgated in an effort to stimulate business, which were subscribed to by the members of the organization. The proclamation issued by the Society takes a decided stand against pessimism. Practically every principle embraced in the proclamation issued by the electrical society might well be sponsored by organizations of clay products manufacturers and dealers. It expresses a very commendable spirit of optimism and a determination to keep the wheels of industry going at their normal—if not increased—rate of speed. For this reason we are reprinting here the proclamation in its entirety, because we feel the spirit with which it is permeated is a good one to develop and because, with the substitution of the phrase clay products industry for that of the electrical industry, the following proclamation would make it an ideal platform upon which to conduct a campaign for "More Business Than Usual."

PROCLAMATION AGAINST BUSINESS STAGNATION

The proclamation of the Society for Electrical Development reads as follows:

America's success in helping to win this war depends not alone on its military forces, or its ships, or its food supply.

It depends, first of all, on our ability to keep the wheels of mercantile business going.

In the months to come will be heard all about us the grumble of the pessimist. It will be said that trade is slackening, that there are food famines, coal famines, freight congestion, labor shortage, business stagnation.

Those will be the days for the electrical industry (clay products industry) to stand together as one man, and boost for prosperity.

We must be up and doing! We must co-ordinate and concentrate to push business.

We believe that business must go on. We believe there are enough strong, optimistic men in the business fabric of this nation to keep it going.

This republic has been built up thru faith in itself.

This is not our first crisis. In other years men have fought side by side to save many a situation in business and in war, because they believed in each other.

Confidence in ourselves, plus "Yankee ingenuity," have given to this nation an ability possessed by no other on the face of the globe—the ability to land squarely on our feet in any upheaval.

We of the electrical industry (clay products industry) look to these days as our supreme opportunity to make business better.

We pledge our active support to the movement by which every business man in this country agrees to hold up his link in the chain of mercantile enterprise.

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

THE ABSORPTION TEST—
ITS VALUE and HOW TO CONDUCT IT

ALTHO BUT FEW APPRECIATE IT, there are many tests upon the properties and working behavior of clays that can be easily and successfully carried on in

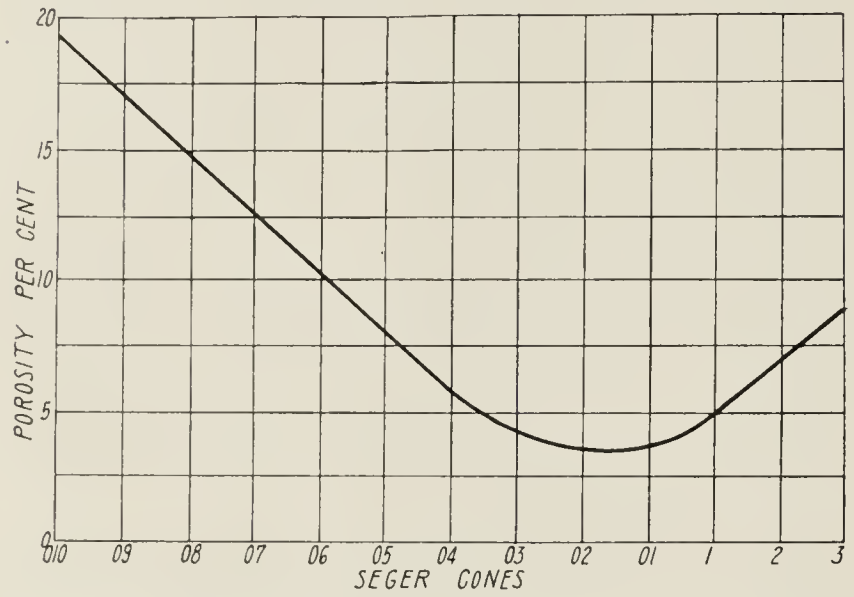


Fig. 1. Absorption Curve of a Clay With a Very Gradual Vitrification. However, Care Must Be Taken in Firing this Clay As It Develops a Vesicular, Spongy Structure After Passing Cone 02

a plant which is not equipped with a testing laboratory, filled with balance scales, spatulas, ball mills, small kilns, beakers and other laboratory paraphernalia.

Due to the lack of such apparatus, many companies neglect tests upon the material they are using which, if carefully made, studied and analyzed, would exert a powerful influence for the manufacture of a better product. Freezing, thawing, vitrification, carbon, shrinkage (settle), and porosity are but a few of those tests which might be conducted accurately without the aid of technical instruments—which can easily be carried on by utilizing the homely apparatus available on practically every plant.

And when the results of these tests are plotted on a piece of cross-ruled paper, a very easily understood and striking arrangement of facts is obtained which gives, at a glance, the characteristics of a clay, telling in no uncertain manner what treatment it should be accorded in order to produce the best results and how to avoid trouble which might otherwise arise.

Almost as an after-thought, we want to impress upon clay products manufacturers the value of the curve or graph. The merit of this pictorial arrangement of facts is so great that no plant should fail to use it, and yet, there are only too many which discount its value, chiefly because they fail to appreciate its purpose.

It is understood, of course, that it is commercially impossible and not at all feasible to improve the clays used in the manufacture of common clay ware by either additions, subtractions or refinements. It is only possible to get the best afforded by the pit or the mine by a process of "selective conscription," that is, choosing the strata desired and eliminating as far as possible the material found to be undersirable.

However, it is possible to improve the ware made from this clay by studying its action during the heat treatment. A determination of the porosity of the material at various stages of burning will disclose very valuable information about burning and temperature control that will aid materially in the production of No. 1 ware.

Possibly no more valuable test can be made upon a clay than the porosity test—it discloses the presence of impurities or fluxes which might have a harmful effect when subjected to high temperature, it shows whether the clay is suited to the manufacture of a refractory, stoneware, or a cruder clay product, and whether it can be used to best advantage as a material from which to manufacture paving brick or other vitreous products, or if its use is limited, because of the impurities which it contains, to the manufacture of common brick.

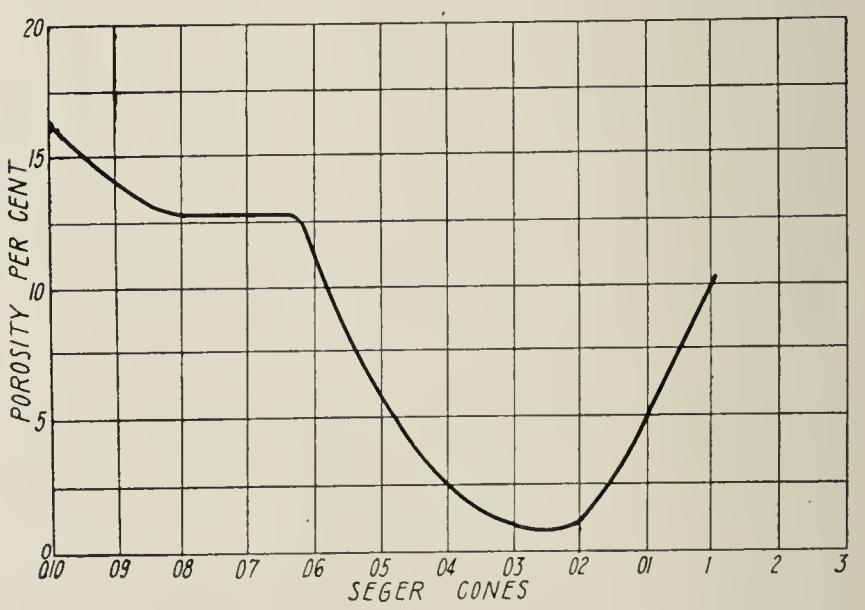


Fig. 2. The Presence of Lime or Some Other Treacherous Flux Is Revealed in this Porosity Curve by the Sudden, Dangerous Drop in Porosity

HOW TO CONDUCT POROSITY TEST

In conducting a porosity test, make up a number of test pieces at least one-quarter to one-half the size of your brick, being careful that they are as near similar in structure to your regular product as it is possible to make them. Place these slabs in your kiln about four or five feet from the door in such a position that they are easily withdrawn with a spud or a long-handled pair of pincers. If you have a pyrometer, place one couple in the door, so that the end comes to a point in close proximity to the test pieces. With this arrangement a

test piece is withdrawn (and allowed to cool in hot sand) at each increment of 50 degrees in temperature.

If no pyrometer is available, cones are used as follows: Place the cones in plain sight, and withdraw a test whenever a cone goes over. It is advisable to set a cone and its supporting pad on each test piece, and in rotation from left to right. When this is possible the probability of error is reduced. The cones selected are usually a continuous list from 010 to the cone beyond which your ware matures.

Guard carefully against chilling the zone where the test is being carried on during the time you are withdrawing a test piece. This can be accomplished easily and positively by dropping the damper a certain amount during the time that the kiln door is broken open.

Weigh each piece as soon as it is possible to do so after removal from kiln and mark it carefully with its cone number or rotation number for temperature if the pyrometer is used.

After the test is complete and all test pieces are weighed in the dry state, boil them for four to five hours, wipe carefuly and weigh again. Next suspend each piece by a light string to one of the pans of the balance and suspend it (the test piece) in water and again weigh.

Three weights are thus secured from which it is easy to calculate the percentage porosity by the following formula:

$$\frac{\text{Wet weight—Dry weight}}{\text{Wet weight—Suspended weight}} \times 100 = \text{per cent. porosity.}$$

From the results obtained the curves are plotted and an analysis is possible.

The following graphs and discussions are intended to show the general form that the curves may take and the reasoning to be applied in interpreting results and in forming conclusions.

Fig. 1. This shows a model curve, the porosity decreasing slowly and gradually as the temperature increases, showing that normal healthy shrinkage is taking place. At about Cone 02 the point of least porosity is secured, at which point vitrification is very likely at its best. At Cone 1 the porosity percentage increases slightly and at Cone 2 or 3 a well defined bleb structure and swelling is evident. Here the ware has most likely passed the point where it is sound and marketable.

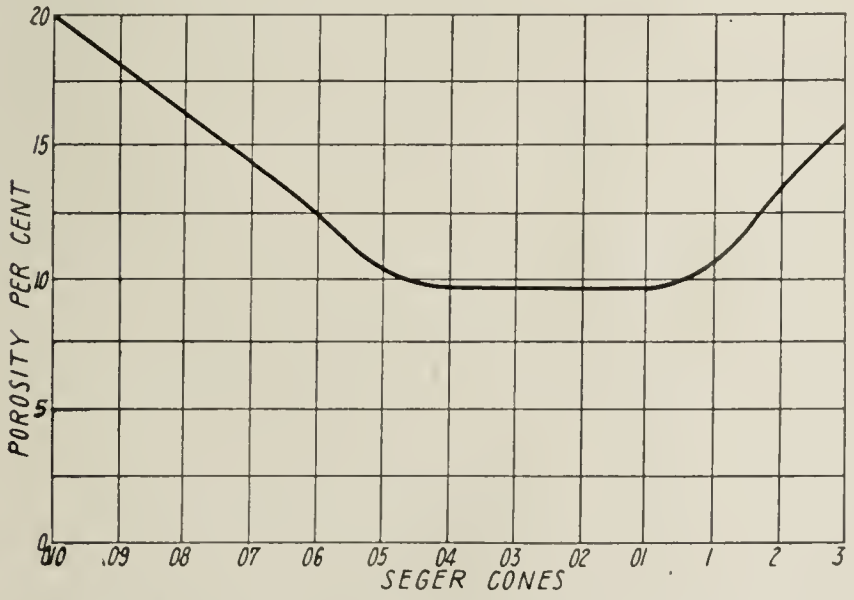


Fig. 3. This Absorption Curve is that of a Clay Which Never Reaches Vitrification, Nor Becomes Tough and Homogeneous

Fig. 2. This graph indicates a treacherous clay having an excess of flux, usually lime. It may be noted that the curve proceeds normally for a time, lags, and then drops suddenly to approximately zero porosity, after which it rapidly rises. The effect of excess lime is writ-

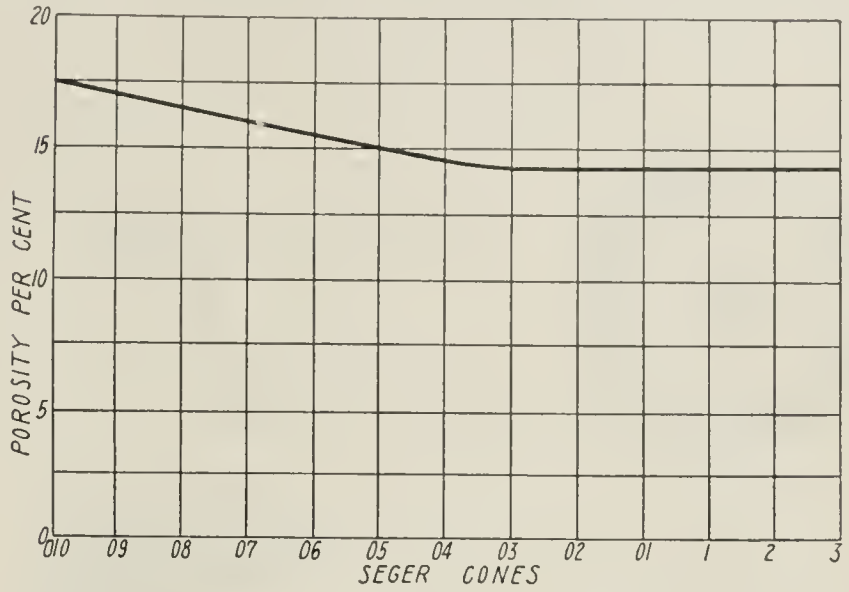


Fig. 4. An Excellent Refractory Clay Would Have An Absorption Curve Similar to That Shown Above, Which Reveals an Entire Absence of Fluxing Materials

ten here very plainly and the point is indicated at which cautious and slow firing is necessary.

Fig. 3. This shows the graph of a clay that never reaches vitrification. It never becomes tough or homogeneous, its structure is glassy and vesicular at higher temperature, altho sound at lower temperatures. It would never do for paving brick material.

Fig. 4. This indicates a refractory clay low in all fluxing elements. If all other possible conditions are good, this porosity curve indicates a good clay for refractories.

There is no doubt at all that the above test can be performed on any clay plants. The knowledge that will accrue and the interest that will be created has in some cases been worth thousands of dollars.

These physical tests are worth many times as much as a chemical analysis, which in the great majority of cases does not produce a single fact that can be depended upon.

The value of all these tests, however, depends entirely on the use that is made of the results obtained.. If the test is conducted as outlined, and the data obtained applied to the actual burning of the ware, we can practically guarantee profit. It may come in a better understanding of your clay, your burning, and of your ware, which is synonomous with cash profits in the end.

* * *

Carbonate of Lime in Clays

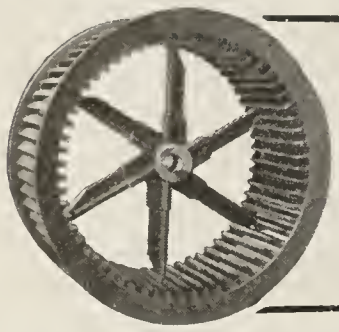
Carbonate of lime is perhaps the most abundant impurity occuring in clays used in the manufacture of burned clay products, inasmuch as it is to be found in practically all glacial and surface clays. It comes usually in grains or small sized pebbles, but often causes serious trouble by appearing in large sized pebbles. When heat is applied to carbonate of lime, it is broken down into quicklime and carbon dioxide gas, which reaction may be expressed by the following formula:

$$CaCO_3 + \text{heat} = CaO + CO_2 \text{ (gas)}$$

Due to the fact that lime is a powerful flux and very sudden in action, it is exceedingly dangerous, and clays containing a large amount of it cannot be vitrified.

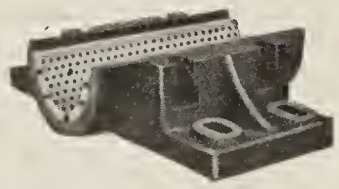
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May 8 issue, it was shown that iron pyrites in clay caused the formation of sulphuric acid (H_2SO_4). If carbonate of lime is present in clay and sulphuric acid is formed, the lime will combine with it to form Ca_2SO_4—the chief source of whitewash in brick.

Lime will tend to make a clay work and dry more easily; it is a sudden flux the vitrification and fusion points of which are so close together that vitrified products cannot be safely made from limey clays. Lime in clays tends to absorb the sulphur gases produced by the coal and as a result, forms Ca_2SO_4, the cause of scum. Lime in clay also masks the red color of clay (due to Fe_2O_3) with a cream or buff color and at higher temperatures a mustard green. If a limey clay is treated with acid (which is practicaly only in small quantities) and the lime removed from the clay, the original red-burning color will be restored. The reverse is also true; if a little whiting is mixed with a red-burning clay it will cause it to burn to a cream or a buff color.

It is also interesting to note the action of $CaCO_3$ in causing bloated or swelled brick. The lime absorbs the sulphur gases and forms Ca_2SO_4 and gradually liberates sulphur trioxide gas (SO_3) which finds difficulty in penetrating the outer walls of the brick, since the temperature at which it is liberated is high enough to have caused a vitrification of the outside of the clay piece. Therefore, when the sulphur trioxide gas strikes this wall and cannot penetrate it, it exerts a force upon it which causes the brick to swell.

There is only one means of combating the lime menace in clays and that is to grind the pebbles to such a small size that they are incapable of causing very much trouble. The purpose of the preceding remarks concerning this impurity was to present a few of the effects which lime has upon clay in order to make possible a clearer understanding of this impurity by clay products manufacturers and to enable them to trace to this source some of the trouble which they are experiencing.

A porosity curve is also of great help in determining the best method of handling lime. If the chart shows a very abrupt drop in porosity between certain temperatures very close together it is more than probable that lime is present and is an indication that the kiln should be held at this point until all of the gas from the lime is expelled.

A practical test for the presence of lime in the clay is to pour HCl on a sample of the clay, which, if lime is present, causes effervescence or bubbling. A more detailed or accurate test may be made, however, by boiling a sample of the clay in a diluted solution of HCl and filtering the liquid thru a filter paper. Add to the clear solution thus obtained some ammonium hydroxide, which will cause a reddish precipitate. Filter off again and add to the clear hot liquid some ammonium oxalate. If lime is present, a white precipitate will result.

The experience of one of the largest brickmaking companies in the United States with this impurity may be of interest. At one of the company's plants, lime pockets were scattered thruout the clay deposit, and since paving brick were manufactured at that particular plant, the effects of the lime, which fails to reveal itself until the burning operation has been reached, were disastrous. Whenever one of these pockets were struck and the lime mixed with the clay in the dry pans, the result was invariably a large amount of spoiled ware. Entire kilns



at times had to be classed as "seconds" because of the action of the impurity upon the clay during the burn.

After suffering great loss from this source, the company plotted out its entire clay bank, spacing it off into sections divided by vertical and horizontal lines, so that each section was about ten feet square, and each section was given a number. The superintendent of the plant then went over the entire face of the bank ahead of the steam shovel and with the aid of a bottle of HCl determined the location of the lime pockets and made a notation on a chart which was given to the steam shovel operator.

When the shovel approached the point in the face of the bank at which a lime pocket had been discovered, workmen were detailed to remove the strata, shoveling the material taken out into baskets and dumping it where it could do no harm. After this system had been installed, there was a very appreciable reduction in the amount of ware made useless or second class because of lime.

Illinois Railroads Embargo Coal

Temporary embargoes placed against coal by four railroads which thread the Illinois coal fields threaten to close down clay products plants and other industries and stop movement of trains on other roads depending for their supply of fuel upon them, according to complaints recently made to the public utilities commission. Roads which have placed the embargo on coal are the Southern, Vandalia, Chicago and Alton, and the Louisville and Nashville.

Burning Ware in a Forty-Foot Kiln

821. *Missouri.—We are at present operating thirty-two-foot round down-draft kilns but are figuring on constructing a new kiln and would like to build it with an inside diameter of forty feet. We wish to ask if any of the readers of "Brick and Clay Record" have ever built a kiln of this size for burning sewer pipe, fire brick, or paving brick, and if so, what success has been met with.*

We do not know whether a kiln of this size would be harder to band and hold, nor do we know whether the heat could be driven to the center and a good center burn obtained the same as in a thirty-two-foot kiln. We figure on making the side walls considerably lower than in our regular thirty-two-foot kilns in order to bring the crown down. Any suggestions which you or your readers may make will be appreciated.

We have given our enquirer the name of one company which we know to be using a forty-foot round down-draft steel shell kiln for burning sewer pipe. However, inasmuch as this company has just recently constructed the forty-foot kiln, it may be impossible for it to give any detailed information regarding its operation or make any conclusive statements of its success.

For this reason we are calling upon our readers who may be familiar with instances where this size kiln has been used for burning sewer pipe, fire brick, or paving brick, to write us regarding its operation and construction, and also explain whether or not any difficulty has arisen in getting the heat in sufficient quantities to the center of the kiln. Letters on this subject, addressed to the Editor, will be greatly appreciated.



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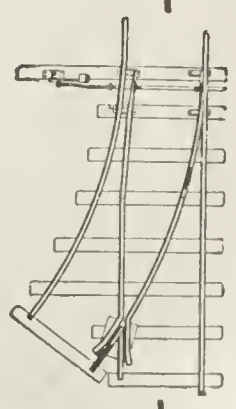
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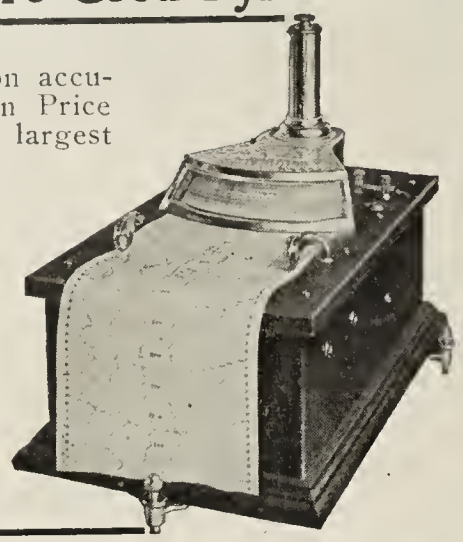
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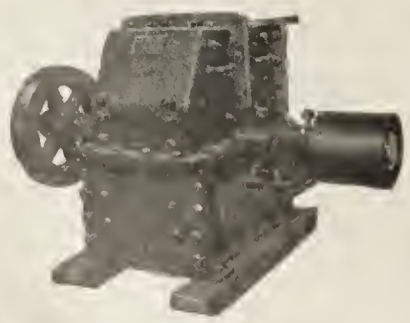
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IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

R. O. Rundell, president of the Dennison (Ohio) Clay Co., died at Springfield, Mass., May 11. Mr. Rundell was sixty-two years old.

C. W. King has been re-elected manager of the Central Connecticut Brick Co.'s exchange located in the National Bank Building at New Britain, Conn., his term to run for one year. Mr. King has been in charge of the exchange for the past year and his services are said to have given excellent satisfaction.

H. H. Titsworth, president of the Clay Products Co., of Indianapolis, Ind., has been appointed a member of the committee that will buy war munitions for the federal government. Mr. Titsworth has gone to Washington to confer with officials there regarding his appointment. His work, it is understood, will be in connection with that of the council for national defense.

Peter Fisher, who until a few years ago was one of the owners of the Sayre and Fisher Brick Manufacturing Company, of Sayresville, N. J., died recently at his home in South Bend, Ind., where he had been living for the last four years. Physicians said his death was caused from a disease of the kidneys. He was sixty-seven years old and was well known among the brick manufacturers of the East.

We are in receipt of a letter from the Davenport (Iowa) Brick and Tile Co. stating that Ed. Berger has been made manager of that company, having assumed that position on April 1. Mr. Berger, who has been associated with the clay products industry for about ten years, has had both office and road experience selling brick and tile, and undertakes his new work fully equipped to efficiently manage the business of the Davenport company. Mr. Boxwell, former manager of the company, is now acting as a salesman and is working up a campaign for the increased use of the company's vitrified hollow silo tile. From all indications, the Davenport Brick & Tile Co. is going to enjoy an active business thruout the coming season, since business has opened up very nicely, the demand for its products being exceptionally heavy.

Connecticut

An unusually good quality of pure white sand has been found on the property of the Farmington (Conn.) Pressed Brick Co. and the company has sold 340 carloads of it for use in a filter bed at Salisbury, Conn. The sand extends to a considerable depth and it is said that the quality of that secured fifty feet below the surface is even better than that above. The Farmington company is making plans for the re-opening of its brick factory about June 1. The machinery is being overhauled and the buildings being put in order in preparation for the opening.



Idaho

It is rumored that the plant of the American Falls (Idaho) Pressed Brick Co. will be leased to J. P. Hayward, J. T. Sykes and Carl Johnson, who plan to incorporate for the purpose of manufacturing and selling brick. The American Falls Pressed Brick Co. conditionally leased the plant to J. F. Kosanke some weeks ago, but the deal was never completed. Mr. Hayward is said to have been indirectly connected with the brick company for several years, while his associates, Mr. Sykes and Mr. Johnson, have also been interested in the company. The new firm will begin the manufacture of brick as soon as it acquires the rights to the plant and already has on hand orders for several thousand brick.

Illinois

The town of Grayville, Ill., is arranging to build several brick streets this year and contracts have already been let for some of the paving to be done.

The Fisher Brick Co.'s plant at Basco, Ill., has been placed in operation for the summer, with E. D. Smith in charge.

The Illinois Fire Brick Company has been incorporated at La Salle, Ill., with a capital stock of $5,000, by L. Stanley Filip, Joseph S. Samuels and T. Behr.

The Decatur (Ill.) Brick Manufacturing Company was recently given an order for 535,000 rough-textured face brick, to be used in the construction of a $750,000 hotel to be erected in Chicago.

Indiana

Brick manufacturers in Indiana have expressed themselves as being well pleased over the appointment of Judge W. J. Wood, of Evansville, as a member of the Indiana Public Service Commission.

A miniature tornado struck the plant of the American Sewer Pipe Works at Brazil a few days ago, blowing down three smokestacks and putting the plant out of operation for a few days.

J. J. Netterville has been appointed receiver for the Indiana Brick Co., of Anderson, Ind., and has been commissioned to operate the plant. The appointment permits the receiver to borrow money not exceeding $10,000.

Brick manufacturers at Evansville, Ind., report a good and steady trade and in most instances the plants are being operated on full time. With the coming of more settled weather, building operations are picking up nicely.

Work on the new brick plant of the Standard Brick Manufacturing Co., at Evansville, Ind., is being pushed rapidly and it will be completed some time during the coming summer.

William E. Dee, of Chicago, owner of the William E. Dee Clay Works, at Newport, Ind., has given another increase in wages to employes at his plant. This increase—the second during the last year—will amount to ten and twenty cents a day.

The Underhill Brick and Tile Company, of Rockport, Ind., announced a few days ago that it had raised the wages of all the men employed at its plant. The raise amounts to one dollar a week to each employe and it has already gone into effect.

The commissioners of Knox County, Ind., recently awarded a contract for the construction of the Miller brick road in Knox County, at a cost of $41,818

ORIGINAL Boss SYSTEM
COMMON SENSE APPLIED TO
Drying and Burning
ORIGINAL Boss SYSTEM

Boss Ten-Hour Dryer

Would you like to really dry your brick and do it in half less time?

Boss System of Burning Brick

Would you like to improve the quality of your brick and reduce your cost of burning?

Then write for information and we'll SHOW YOU HOW!

JOHN C. BOSS COMPANY
Monger Building - Elkhart, Indiana

Manganese Dioxide

All grades and sizes suitable for manufacture of manganese brick, also high grade ore for chemical, dry battery, paint, varnish and glass trades. Prices quoted upon receipt of inquiry giving full details as to analysis, size, tonnage, etc.

Crimora Manganese Corporation
30 East 42d Street NEW YORK



SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

Produces absolutely uniform heat and reduces fuel consumption. Keeps the heat where it is productive. The reduction in rejected pieces will pay for the insulation in the first month of operation.

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Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.



We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

STUPAKOFF PYROMETERS

for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

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Pittsburgh, Pa.



The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana



B. & B. Aerial Tramway Systems

Handle any kind of loose material expeditiously, economically and with absolute safety.

Where the grade is sufficient, gravity supplies all the power, and one or two men can operate an entire tramway.

Ask for Catalog 16 giving detailed information.

Broderick & Bascom Rope Co.
St. Louis, Mo.

New York **Seattle**

Logical and Sensible **Bottom Dump Cars**

In a majority of the clay plants the **logical** clay car is the **bottom** dump car.

Why should you employ a car that must be half upset by main force, hammered and racked in order to discharge the load, when by using the Youngstown bottom dump you conserve the life of your cars from three to four times and the elevated track structure is not jarred to pieces?

It's logical, isn't it?

The Youngstown Steel Car Co.
Youngstown, Ohio



and for the construction of the Otto Kramer brick road for $52,907. The roads combined are less than six miles in length and will be the first brick roads to be constructed in Knox County.

The brickyard of the Southern Indiana Clay Products Company, which has taken over the Patoka Brick and Tile Company, at Huntingburg, Ind., is now being operated to capacity. The employes of this company were recently given an increase of twenty-five cents a day. The plant of the Dry Press Brick Company, at Huntingburg, is also being operated. The greatest trouble the plants at Huntingburg are now facing is getting a sufficient supply of coal.

The National Tile Company, of Anderson, Ind., has adopted a nine-hour day schedule, thus giving its employes an extra hour each day. Altho the plant will close at noon on Saturdays, thus making a total of only fifty working hours a week, the employes will receive pay for fifty-five hours. The new schedule, it is announced, will be kept in effect until October. The company owns a large tract of land near the plant which it has divided into plats for employes who desire to raise gardens. A number of the employes have already taken advantage of the offer.

R. L. Akers, former proprietor of the Jeffersonville (Ind.) Brick Company, is still awaiting the decision of the Pennsylvania Railroad before he makes any plans for erecting a brickmaking plant elsewhere. The old plant of the Jeffersonville company is lying idle and no effort is being made by the railroad company to dispose of the 100,000 brick now in stock, but an announcement has been made that an elaborate program of construction of terminals, shops and roundhouse would be undertaken, and it may be possible that the railroad will start up the plant and manufacture all the brick required for this construction work.

Iowa

April, for the Rockford (Iowa) Brick & Tile Co., was a month of unusual activity, the sales for this period exceeding $24,000 and shipments amounting to 178 carloads, according to G. H. Galvin, manager. The Rockford company, which operates one of Iowa's best clay products plants, is undergoing a process of expansion and improvement. Work was recently started on the construction of two new kilns which will increase the company's battery to a total of fourteen. Just recently an excavator was installed for the purpose of stripping the company's clay bank and, when it completes this work, will be used in gathering the clay itself. Plans have been very carefully laid out for the complete electrification of the company's large plant, the motors having already been ordered. Mr. Galvin states the demand for brick and tile over the Buckeye State is unusually good, and he anticipates that the coming year will be a banner one for the Rockford Brick & Tile Co.

Kansas

The Westcliff Brick Company has been organized at Kansas City, Kan., and will take over the Doarn brickmaking plant of that city, to which it intends to add new machinery and equipment.

Kentucky

The Rose Hill Brick and Tile Company has been incorporated at Harlan, Ky., with a capital stock of $10,-



000. The incorporators are J. M. Creech, W. B. Landrum and V. G. Schimmel.

K. P. Grahn, president of the Louisville (Ky.) Fire Brick Company, noted a continually increasing difficulty in obtaining cars for shipment of the company's product. This company is being obliged to decline orders for fire brick thru inability to make deliveries. On numerous occasions, Mr. Grahn stated they have gone directly to the higher officials of the railroads serving cities where their customers are located and have thus occasionally been able to get cars for shipment of their products.

Continued car shortage is the chief difficulty with which the Kentucky brick and clay products interests have to deal at this time. On top of this curtailment of service there is an increasing demand for brick, principally from points out in the state which look to Louisville for their supplies. Coal prices have gone to unprecedented figures and the top limit is not in sight, according to the coal interests, who deny any participation in an alleged effort to control prices. While investigations are being conducted to uncover any manipulation which may have taken place, industrial consumers north and east of Kentucky have been sending representatives to this field by the score to get coal at almost any price. Buying offices in the mining field are not unusual. Brick men, furthermore, are watching their labor closely so that it does not get away from them.

James T. Howington, general manager of the Coral Ridge Clay Products Company, Louisville, Ky., said there had been no sign of a let-up in the demand for brick and for hollow tile. Orders are coming in and being booked, subject to delivery limitations, right along. Discussing the car shortage, Mr. Howington said that there had been some consideration by his company of trucking brick from the plant south of the city to Louisville, but for short hauls of this kind it is less difficult to obtain cars than for the longer hauls. As president of the Southern Hollow Tile Association, Mr. Howington has called a meeting of the directors at Birmingham on June 7. This will be followed by a meeting of the association on the day following and probably by the opening of permanent headquarters in the Alabama industrial city. It was expected that the second meeting of the association would be held in May, but after canvassing the situation it was postponed to June.

Maine

New kilns are being installed, drying sheds erected, and other preparations are being made for the early opening of the Hawkes Brick Yard, at Westbrook, Me., which was recently acquired by the firm of Baird & Peters, of St. John, New Brunswick, Can. The yard is expected to be ready for operation within a short time, probably by the first of June and, since it will manufacture other products besides brick, it is expected to be operated thruout the year. About forty men will be employed at the outset.

Maryland

A voluntary petition in bankruptcy was recently filed by the Adamantine Clay Products Co., which operates a large brick plant at North Mountain, Berkeley County, Md.

Massachusetts

W. L. Osborne recently sold his brick yard, located at Leominster, Mass., to the Fitchburg Brick Co. The



The New Sewer Pipe Truck

Differently designed—built better than ordinary—with the same care, the same skill, and of the same excellent materials of which we have long designed and built Toronto Machinery, from Sewer Pipe Presses to Dry Pans and Wheelbarrows.

This Pipe Truck is built in 3 different sizes. No. 1 handles 18", 20" and 24" pipe. No. 2 handles 27", 30" and No. 3 handles 33" to 36" pipe.

A post card request brings to you our descriptive matter.



Toronto Foundry & Machine Co.
Toronto - - Ohio
It will save from 1 to 3 men according to size of pipe



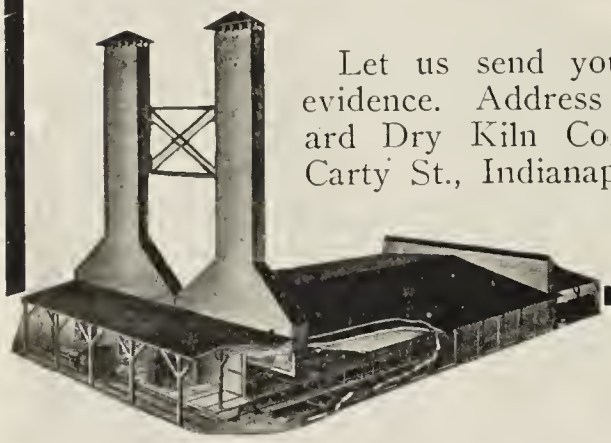
NATURE

is the Great Scientist. But her processes, though sure, often are tediously slow. In brick drying, for example.

Far faster yet equally sure results are secured by The Standard Natural Draft Drying System.

Scientifically patterned after Nature's **own** process, The Standard Drier is perfectly adaptable for *all varieties* of clays.

Its 30-year record of successes throughout the brickmaking world proves this.



Let us send you convincing evidence. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

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NEW YORK, Broadway at 54th Street



Broadway cars from Grand Central Depot

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New and Fireproof

Strictly First-Class

Rates Reasonable

Rooms with Adjoining Bath
$1.50 up

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10 Minutes Walk to 40 Theatres

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HARRY P. STIMSON
Formerly with Hotel Imperial

Only New York Hotel Window-Screened Throughout

business had been in the hands of the Osborne family for more than fifty years.

The New England Brick Co., of Boston, Mass., has been awarded a contract to furnish brick for the new postoffice building to be erected at Reading, Mass.

P J. Kennedy & Co., contractors of Holyoke, Mass., have purchased the brickmaking plant of the Holyoke Brick Co., at Willimansett, a suburb of Holyoke. The property has been under the personal management of John J. O'Neil, head of the Holyoke Brick Co. for several years and is considered one of the best brick yards in western Massachusetts. The price paid for the property is said to have been in the neighborhood of $40,000.

Michigan

The Michigan Brick Co. is the name of a new concern incorporated at Bay City, Mich., with a capital of $10,000.

The Cadillac Clay Co. has been incorporated at Detroit, Mich., with a capital of $7,500.

According to a notice recently received, the Mount Clemens (Mich.) Brick & Tile Co., whose plant has been idle for the last three years, will dissolve shortly.

The National Paving Brick Manufacturers' Association will be represented by an exhibit at the Michigan Good Roads Association meeting, to be held at Saginaw, Mich, May 23, 24 and 25.

Minnesota

For more than a quarter of a century the Hutchinson (Minn.) Brick and Tile Works has been manufacturing burned clay products in the Northwest. A new record was recently set up when recognition of its product came from Fargo, N. D.—the most distant point to which this company has ever shipped its products. Shipment of twenty-five cars of tile will be made by M. C. Madsen, president of the company, as soon as Walter Madsen, secretary, completes the survey of the farm in which they are to be laid. The Hutchinson plant is planning to start operations as soon as its clay beds are workable. A sufficient supply of material is on hand, however, to supply the local demands and to make frequent shipments to outside points. Many improvements have been made since the plant shut down last fall, which will greatly increase its capacity and enable it to cope with what promises to be the biggest demand for its products which it has ever experienced.

Montana

Another brick machine has been installed at the plant operated by L. Wanderer at Hamilton, Mont., which will increase its capacity to 40,000 brick a day.

The Great Falls (Mont.) Brick & Tile Co. have been incorporated with a capital of from $200,000 to $300,000 to manufacture clay products. S. S. Hobson, Frank W. Mitchell and Ranson Cooper are the incorporators of the new company.

Work on the construction of several permanent kilns is to be started soon by the Roundup (Mont.) Brick and Tile Co. This comparatively new concern is already enjoying a very heavy demand for its products and has developed a market which extends well over the state of Montana. As soon as the necessary arrangements can be made, cottages will be built at the plant for the workmen and a railroad spur will be laid.



Nebraska

As a result of action which was recently taken by the city commissioner of Omaha, Neb., revoking a permit to the Smith Brick Company to move its plant to a new location, the production of common brick in that city has been reduced by 50,000 brick a day. Contractors are compelled because of the shortage which has resulted from this reduced production, to pay $1.50 a thousand more to have the brick shipped in.

New Hampshire

Residents of Portsmouth, N. H., and adjoining towns are discussing the question of the possible resumption of the brickmaking industry which once flourished along the banks of the Piscataqua, Bellamy, and Durham rivers, but which of recent years has become a lost art in this vicinity. At one time there were twenty-eight yards operating on the banks of these rivers and a fleet of small schooners was used to transport the product to market at Boston and elsewhere. Later, barges and tugs replaced the schooners and did a thriving business. Persons who have investigated the possibility of resumption of the industry declare that there is still enough clay of excellent quality along the banks of the Piscataqua to keep brickmaking plants in operation for generations to come.

New Jersey

The Standard Brick Works, of Mountainview, N. J., is rehabilitating its yards in preparation for a very active season. Operations will commence shortly, and altho labor is difficult to obtain, the outlook for this company is very optimistic.

Along the Hackensack River a few brickmaking yards have been placed in operation, but the weather has been so cold and wet as to make it impossible to dry the brick in the open yard. Here and there a yard has started on its second burn, but in the main nothing is being done other than to make repairs and prepare for the future. Of the first ten days in May, six were stormy.

At Little Ferry, N. J., the Mehrhoff Brick Co. has begun operations upon a fairly liberal scale, but has been hampered by the unfavorable weather conditions. Apprehension is being felt in this section regarding the coal situation, since the enormous purchases which are being made by the government have made it almost impossible to buy coal on the Atlantic Coast. It is understood that a shortage is being experienced by every industry in this territory, which threatens to become worse as the summer passes.

Nothing is as yet being done by the Kingsland (N. J.) Brick Co. to rebuild its plant, which was destroyed by the explosion that wrecked the munitions plant of the Canadian Car and Foundry Co., at Kingsland, some months ago. When asked whether the plant is to be rebuilt, T. A. Kinney, president of the company, stated that as yet no plans have been made. Prevailing conditions in New Jersey are not very favorable to the construction of a brick manufacturing plant, and it is doubtful if work will start very soon on the reconstruction of the Kingsland Brick Co.'s factory.

New York

The Oxford Tripolis Sales Co. has been incorporated with a capital of $25,000 for the purpose of manufacturing and selling brick and building tile, sewer pipe,



Marion

Steam Shovels, Dredges, Draglines and Kindred Machinery

STRIPPING a 17-foot overburden of clay to get to a bank of genuine "Galesburg Shale," and then digging this shale, to be made into its famous 10-pound paving brick, The Purington Paving Brick Company, of Galesburg, Illinois, employ three Marion Shovels.

The oldest of these, a pioneer "Marion" in the field of brickmaking, is still making good in hard stripping, six months in the year. One "Marion"

Loads Shale for 350,000 Bricks a Day—Has Had Two Overhaulings in Ten Years

—and has not been taken from the pit once during the whole time.

Marion Shovels are honestly designed, honestly built, honestly sold; they do their work with plenty of "reserve power" left over.

We shall be pleased to furnish particulars applying to your special proposition, without obligating you in any way, if furnished the necessary facts.

The Marion Steam Shovel Company, Marion, Ohio

Branches: Atlanta, Chicago, New York, Philadelphia, San Francisco, Seattle

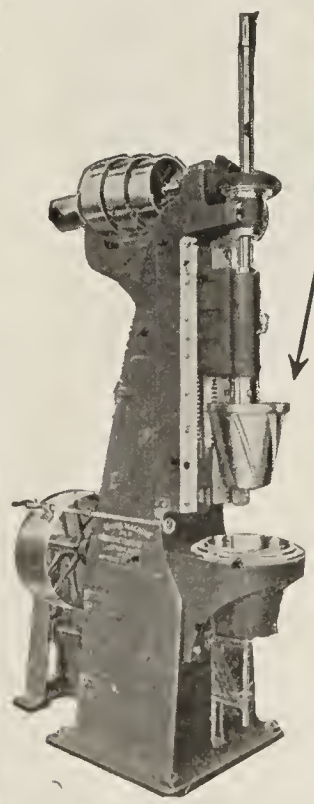
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Why Don't You Make Flower Pots



It's a big field with very little competition, and it makes a profitable side line for any plant making brick or tile products.

Start right by adopting the



Baird

Flower Pot Machine

Simple in operation, accurate in its work, and from six to ten times as rapid as old methods.

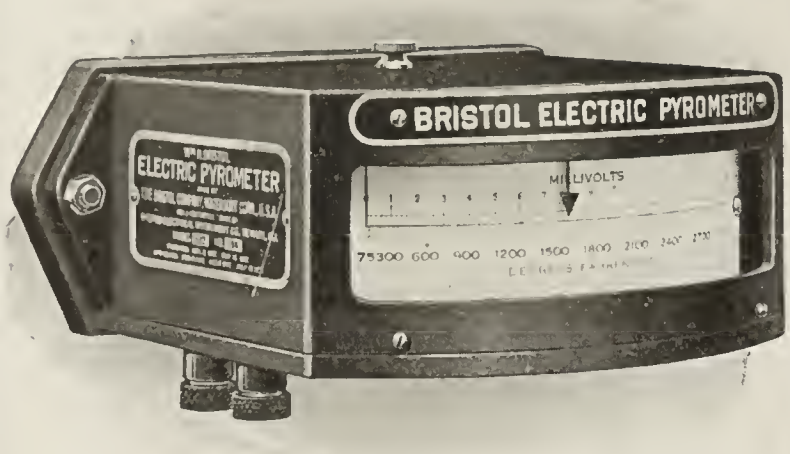
Send us a sample of your clay—we'll show you what our machine will do for you, and send you full information.

Baird Machine & Mfg. Co.

54-56 Jefferson Ave.

Detroit, Mich.





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Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

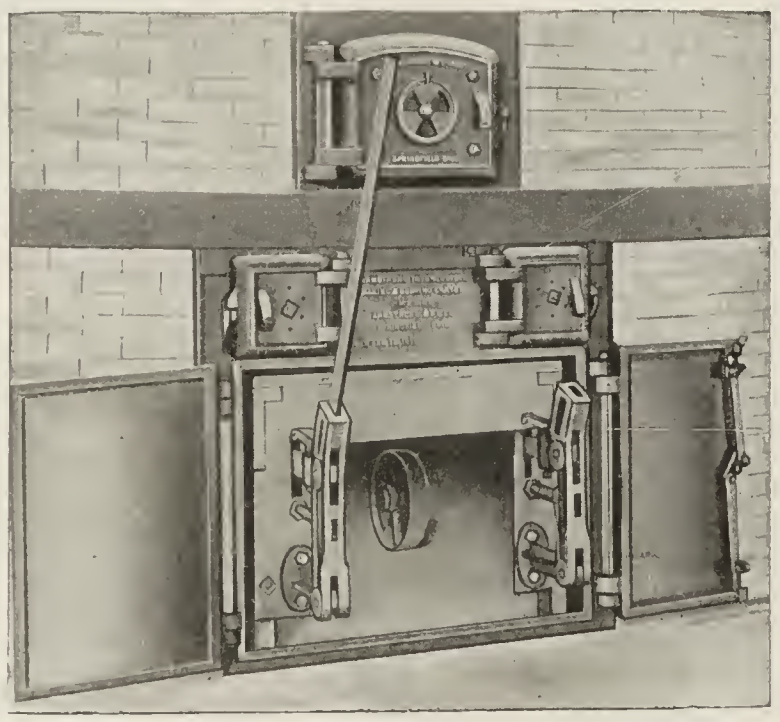
BRISTOL'S ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. Waterbury, Conn.

Branch Offices: Boston New York Pittsburgh Chicago San Francisco



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

pottery and other materials. The incorporators of the new concern are J. Potts, A. F. Walter and A. H. Strickland, of 65 Wall Street, New York City.

New York State Department of Labor reports that the stone, clay and glass products group of industries, which are classed together, employed in March nearly three per cent. more workers and paid out five per cent. more wages than in February. Each of the industries report a marked gain over February except brick, for which the season had not yet fully opened, but even in that item there was a slight increase as compared with March, 1916.

Nova Scotia

The head offices of the Nova Scotia Clay Works, Ltd., have been moved from Halifax, N. S., to Elmsdale. The company's largest plant is located at the latter point, and the change was made with a view of affording closer supervision of manufacturing.

Ohio

The Acid Proof Clay Products Co. has been incorporated at Akron, Ohio, with a capital of from $1,000 to $100,000.

The Ohio highway commission opened bids on May 17 for a number of jobs for brick paving on the principal highways of the Buckeye State.

John A. Conrad, formerly head of the Conrad Brick Co., of Columbus, and later connected with the Hallwood Brick and Tile Co., has recovered from a severe operation.

Charles J. Deckman, president of the Medal Paving Brick Co., of Cleveland, Ohio, was in Columbus recently. He reports conditions rather active, altho shipments are held up by the car shortage.

The Fowler-Worman-Kelly Company, real estate operators, of Cleveland, Ohio, announce that the Fire Safe Development Company is rushing plans for the erection of twenty-three homes of brick, stucco and tile in West Haven allotment, adjoining Clifton Park. The houses will be models of fire safe construction.

The Hallwood Brick & Tile Co., of Columbus, Ohio, has just completed the installation of a drag line excavator at its plant located at Seventeenth Avenue and the Big Four tracks, Columbus. The company, which manufactures hollow tile and common brick and is shipping in excess of 50,000 daily, is also planning to erect a new kiln.

The Warran B. Ferris Brick Co., Columbus, Ohio, reports a good demand for brick with sufficient orders on the books to take care of the output for several weeks. Shipping at both of the factories of the company, located at Canton and Frederickburg, Ohio, is more active now and prospects for the future are rather bright, according to Mr. Ferris.

The Ohio Paving Brick Manufacturers' Association, which has headquarters in the Hartman Building, Columbus, is taking an active interest in street and road paving which is being projected for the present year. According to the officers of the company there will be considerable brick paving both in municipalities and on state highways.

The Ohio State Brick & Stone Co., Columbus, Ohio, which has taken over and is operating the plant of the Shawnee (Ohio) Flash Brick Co., reports considerable activities at the plant. C. B. Young, who is at the head



of the company, reports that the shortage in cars is holding up shipments to a large degree.

H. F. White, manager of the brick department of the Hocking Valley Products Co., of Columbus, Ohio, has returned from a business trip in Chicago, where he was investigating the building situation. Shipments from the company's plants are slow, as the car supply is getting worse instead of better. Mr. White made a thoro inspection of the company's plant at Greendale recently.

Manufacturers and dealers in brick and other building materials are urging contractors and prospective builders to proceed with construction work, even at the high prices for materials which prevail at present. It is argued that prices will not be lower for several years, as the cost of building materials is determined by the cost of raw materials and labor. It is claimed that neither raw materials nor labor will decrease under present conditions and consequently higher prices can be expected for some time. This argument is having its effect among certain classes of building and some projects have been revived.

J. P. Turpen, manager of the Columbus (Ohio) office of the Thomas Moulding Co., reports the sale of 370,000 face brick for two new school buildings under course of construction in Lima, Ohio. The order consists of 150,000 gray brick for the exterior of one of the buildings and 220,000 buff brick for the interior of the two structures. The brick are to come from the plant of the Straitsville Impervious Brick Co., at New Straitsville, Ohio, which is owned by the Thomas Moulding Co. Mr. Turpen reports rather quiet conditions due to the high cost of materials and the lack of shipping facilities.

Miss Stelka Fox, who was associated with the Hocking Valley Brick Company, of Columbus, Ohio, for several years, has severed her connection with that concern to assume the duties of cost accountant for the Lake Shore Brick Company, of Ashtabula, Ohio. Miss Fox will be assisted in her work in installing a cost accounting system by Miss M. E. Buckley, of Ashtubula. It will be recalled that an item recently appeared in "Brick and Clay Record" stating that a new company had purchased the plant of the Ashtabula Brick Company at a receiver's sale and was preparing to place it in operation. Since that time it has been learned that the name of the new company is the Lake Shore Brick Company.

Oklahoma

A brick manufacturing company, with a captal stock of $25,000, has been organized at Bristow, Okla., and will operate under the name of the Bristow Pressed Brick & Tile Co. S. Allen, of Sapulpa, Okla., will be at the head of the new concern.

Pennsylvania

According to a recent notice, the Savage Fire Brick Co., of Meyersdale, Pa., has closed its offices in the Park Building, at Pittsburgh.

A conflagration recently swept the brick plant of the estate of the late Simon Kline, West Reading, Berks County, Pa., destroying many of the drying sheds, part of the machinery and the engine and boiler rooms. The flames, which are supposed to be of an incendiary origin, caused a damage of about $5,000.

The Harbison-Walker Refractories Co. has declared an extra dividend of six per cent. on the common stock, payable May 29, to holders of record May 19. This is the

Gold Medal Award



Panama-Pacific Exposition
for

THWING

HIGH RESISTANCE MULTIPLE RECORD

PYROMETERS

Their Merits are Vouched for by Hundreds of Satisfied Users

Ask for our New General Catalog No.8

THWING INSTRUMENT CO.

3336 Lancaster Ave. - Philadelphia, Pa.



Look Well to Your Belts

You can't possibly get capacity out of your machines—you can't get every unit to run smoothly if your belts are slipping or if they don't pull evenly. You know that.

Why worry along that way when it is so easy to specify

Hettrick Canvas Belting

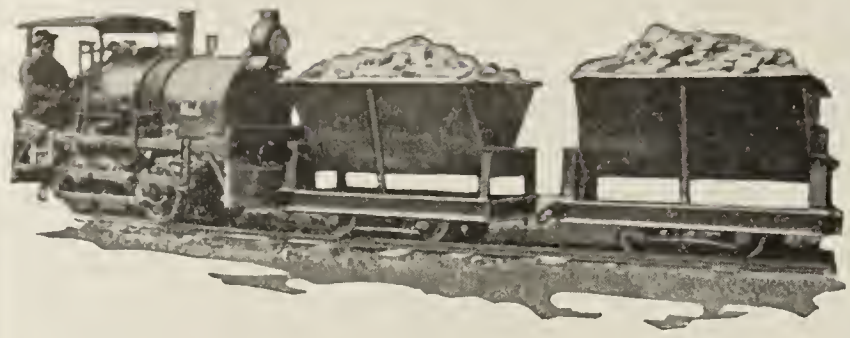
which is giving clay products manufacturers such excellent service daily in power transmission, elevating and conveying.

Remember the name—"Hettrick."

THE HETTRICK MFG. CO.

TOLEDO, OHIO





A BETTER ENGINE—AS
IT COSTS LESS
IT WORKS FOR LESS
IT DOES MORE

That is what you want and it is what you will buy—if you will give us a chance to show you positive proofs that our claims above are founded on performance—on the job.

The Bell Steam Locomotive

burns kerosene oil costing only 9c per gallon. Its other features are winners, too.

Address,

Bell Locomotive Works, Inc.
30 Church Street **New York City**

You can get a higher price for your brick if you guarantee it will be

Scum-Proof

And you **can** do this with perfect safety by using

R. H. Precipitated Carbonate of Barytes

It neutralizes the salt in your clay so that it cannot appear on the surface of the brick after it gets wet.

But don't accept a substitute—insist on R. H. —the **dependable brand.**

Write for circular and prices.

The Roessler & Hasslacher Chemical Company
100 William St. **New York**

Chicago, Ill. St. Louis, Mo. Philadelphia, Pa.
Cincinnati, O. Kansas City, Mo. Boston, Mass.
Cleveland, O. San Francisco, Cal. New Orleans, La.

We carry a complete line of high grade chemicals for the clay industry

same as the extra declared in the previous quarter. The usual quarterly dividend of 1½ per cent. was also declared, payable June 1 to holders of record May 19.

Texas

The Elgin (Tex.) Standard Brick Co. has increased its capital stock from $30,000 to $75,000.

Charter amendments were recently filed by the Athens (Tex.) Fire Brick Co., decreasing its capital stock from $50,000 to $25,000.

Work on the construction of the Beaumont (Tex.) Brick Works is going ahead rapidly, the drying sheds having already been completed and temporary kilns built for the purpose of burning the brick to be used in the construction of the company's own permanent buildings. The plant, which will represent an investment of $75,000, will have a capacity of 50,000 brick a day and will be equipped with four kilns, the combined capacity of which will be 2,000,000 brick. According to present indications, operations will be started at the Beaumont factory by July 1.

Utah

The Smithfield (Utah) Brick & Tile Co. recently installed a new brickmaking machine, which greatly increased its capacity. The Smithfield company looks forward to a very large volume of business during the coming year and is preparing to set up a new record of production.

Washington

A petition for the dissolution and disincorporation of the Bergman Clay Manufacturing Co., of Spokane, Wash., was filed in the Superior Court on May 1. The petition was filed by J. H. Evans, president of the company, who stated that a majority of the stockholders voted for the dissolution. The company, which maintains headquarters in Spokane, has been engaged in the manufacture of clay products for a number of years.

Wisconsin

At a recent meeting of the stockholders of the Marshfield (Wis.) Brick & Tile Co., it was decided to increase the capital stock in order to obtain funds with which to purchase new equipment and machinery. It has been planned to install grinding equipment and conveying machinery as well as to construct two down-draft kilns and to make an addition of four tunnels to the present four-tunnel dyer. These improvements are expected to increase the capacity of the plant one hundred per cent. A boarding house for the superintendent and workmen will also be constructed at the plant in the near future. Before deciding upon the type of equipment to use, F. A. Krasin and Louis Hartl, officers of the company, spent a week inspecting brick and tile plants in Wisconsin and Illinois. It is understood that the improvements will be started immediately and completed by early summer.

Wyoming

After extensive tests, it is said, had revealed the clay taken from a deposit recently discovered at Kirby, Wyo., to be of exceptionally high quality, it was decided to promote a company and erect a plant at that point for the purpose of manufacturing brick and tile. The company of Kirby people which is being formed is headed by J. B. Wight, and has its plans well under way.



POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

A wage increase ranging from five to ten per cent—the second within nine months—was granted to approximately 7,000 pottery workers in the general ware plants of the United States at a conference between the labor committee of the United States Potters' Association and the executive board of the National Brotherhood of Operative Potters, held in East Liverpool, Ohio, May 8.

The new wage scale goes into effect on the first full pay after May 8 and applies to every trade in the general ware potteries. It is the intention, it was said, to distribute the wage increase so as to give the greater raise to those most in need of it.

The action of the manufacturers was unexpected by the employes. The manufacturers, after reaching a decision in the matter, advised President Edward Menge, of the National Brotherhood of Operative Potters, of the proposal and requested that he arrange for a conference between the executive board of his organization and the labor committee of the manufacturers.

Last fall, despite the fact that a two-year agreement between the United States Potters' Association and National Brotherhood of Operative Potters was in effect, the manufacturers made their first voluntary wage increase to the general ware potters. It ranged from five to ten per cent.

DETAILS OF NEW SCALE

The new scale of advances follows:

All clay workers advanced five per cent.

In addition to a five per cent. advance on present wages, batterouts and mold runners are to receive a bonus of twenty-five cents per day for every pay during which they put in eleven full days or more.

Mold workers, sagger makers, and dippers advanced five per cent.

Slip makers, piece work, new price one cent per leaf, plus 16⅔ per cent.

Glost and bisque kilnmen, new price $2.35 per kilnman's day net.

Kiln drawing—glost—forty-seven cents per 100 cubic feet net.

Kiln drawing—bisque—fifty-one cents per 100 cubic feet net.

Warehousemen, first year, $2.00 to $2.50 net.
Warehousemen, third year, $3.00 net.
Warehousemen, after third year, $3.25 net.
Packers, $3.75 per day net.
Piece work, advanced ten per cent.

REVISED SCALE FOR WOMEN

Glost Dressers, $1.55 per day net.
Bisque Brushers, $1.60 per day net.
Dippers Helpers, $1.65 per day net.
Stampers, $1.60 per day net.
Glost Drawers, $1.35 per kiln net.
Bisque Drawers, $1.40 per kiln net.

DECORATORS DEMAND TEN PER CENT. INCREASE

A demand for a flat increase of ten per cent. in day wage and piece work prices has been made upon the pot-

Avoid Annoying, Costly Leaks

in the boiler room, or on any flanged pipe line or connection in the plant carrying steam, hot or cold water, etc., by the use of

JENARCO Sheet Packing



A gasket of Jenarco placed between any flanged joint will make that joint absolutely and permanently tight. No escaping of steam, no damaging or costly leaks, no annoying dripping of water. Obtain through your regular dealer, either in gaskets cut to exact size and shape required, or in sheets 36 in. wide, any length required, all standard thicknesses.

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
133 N. 7th Street, Philadelphia. 300 W Lake Street, Chicago.
Jenkins Bros, Limited, Montreal, Canada, and London, E. C. England.

Isn't it strange that You haven't a Beighlee?

Wonder if you realize that in construction and operation, it is one of the most beautiful instruments that you ever laid your eyes on?

Have you investigated it, asked any questions, read the catalog?—don't you know that you ought to know all about it.

We've sold to high class plants because of merit—for these plants want results.

No pyrometer is quite so good as the Beighlee.

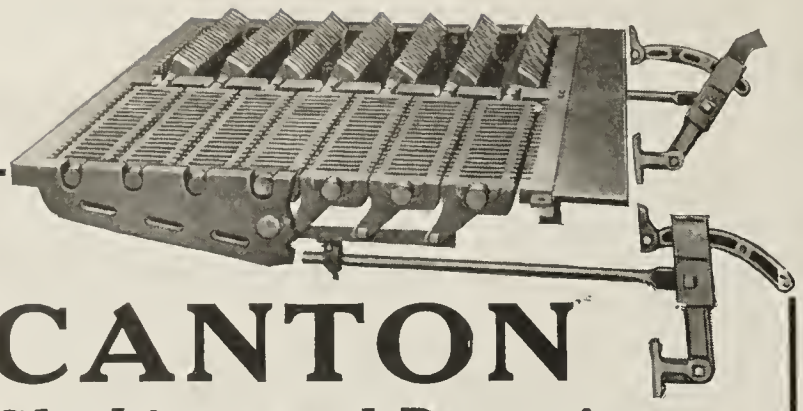
Will you challenge us?



Better ware at a lower cost, it can be done. Ask how.

Beighlee Electric Co.
Cleveland, Ohio
HERMAN A. HOLZ,
Hudson Terminal Bldg., New York
Representative in New England States





CANTON
Shaking and Dumping
GRATES

Not a TRIAL Nor An EXPERIMENT

When it comes to saving fuel, keeping the fires clean, removing clinkers and ashes easily, these grates have proved their practical utility for many years.

The Canton Grate has satisfied its owners long before many other grates were thought of, and today hundreds of Brick plants are using it and saving money.

When you want Grates—don't forget to investigate the merits of the Canton Boiler Grate. Write for catalog.

THE CANTON GRATE CO.
1706 Woodland Ave.
CANTON - - - - OHIO

A Scummed Brick Wall— Whose Fault?

If your brick do not suit the customer, due to a yellow-grey-whitish scum—or—if after the sale, one year later, they begin to effloresce, to show streaks of scum, what do you do, what can you do?

Ordinarily you apologize and explain in a futile way that it couldn't be helped, that all brick do it sometimes, in fact you do your best to "get out from under," yet down deep in your heart you know that it is your own fault, your fault alone.

The difficulty could have been prevented, all possibility of scum eliminated by using

Rollin's Barium Carbonate

early in the manufacturing stages in the pug mill.

The method is exceptionally cheap, we will tell you how to do it if you will write to the

Rollin Chemical Company, Inc.
Charleston, West Virginia

General Sales Agents
National Analine & Chemical Co.,
100 Williams St., New York

tery manufacturers of East Liverpool and Wellsville, Ohio, and Chester and Newell, W. Va., by the gilders, liners, and tinters of the American Association of China Decorators. The pottery manufacturers have been given a few days in which to comply with the proposed wage increase. Failure on their part to act, it was stated, would result in a strike. Approximately 350 gilders, liners and tinters in the pottery plants of this district will be affected by the action. By a referendum vote the gilders, liners and tinters asked for the wage increase, the same to become effective the first full pay after May 10. Harry Hancock, president of the decorators, claims that under the recent voluntary wage increase granted by the manufacturers, the gilders, liners and tinters were in some instances given an increase of five per cent. and in other instances none at all. It was further asserted that a discrimination is being made in some plants on certain patterns on which an increase of five per cent. was granted.

NOT SATISFIED WITH TERMS OF INCREASE

Dissatisfaction with some of the terms of the voluntary increase has caused a strike of mold runners and batters-out in several East Liverpool potteries which has spread to one shop in Newell. Strike leaders claimed that at least five hundred men had answered the walk-out call.

The strikers are demanding a daily bonus of twenty-five cents regardless of the number of days they work. The manufacturers in the voluntary wage increase, gave the men a five per cent. advance in wages and offered a bonus of twenty-five cents per day provided they worked eleven or more days a pay.

The walk-out of mold runners and batters-out in five Sebring potteries, in which they demanded a daily bonus, was settled under the terms of the original proposition made by the manufacturers—the workers to receive a daily bonus of twenty-five cents per day if they worked eleven or more days a pay, with the understanding that the bonus would be paid if the firm was responsible for their failure to work the specified number of days. Official announcement to this effect was made by President Edward Menge, of the National Brotherhood of Operative Potters, and F. A. Sebring, President of the Sebring Pottery Co.

PREDICTS HAVILAND PLANTS WILL CLOSE

Sydney Ichenhauser, of the Ichenhauser Co., at Evansville, Ind., wholesale queensware dealers, says that it is probable that the big Haviland factories in France will close this summer because of a scarcity of coal and skilled labor. The Germans are now in possession of the territory around Lens, where most of the French coal fields are located and three-fourths of the skilled labor in the Haviland factories has been called to the colors. With the industry so crippled it is doubtful if the manufacture of Haviland ware will long continue. Due to the renewed submarine activity the insurance rates on exportations have again raised, making the cost of the finished product almost prohibitive. Mr. Ichenhauser says that the Haviland Co. is still taking orders, but will not make any promises as to delivery and will not quote prices. Orders placed now probably will not be filled for a year and in that time the price of china might advance four or five times. The price since the war started has advanced about seventy-five per cent.

OHIO POTTERY TO TAKE OVER NEW FACTORY

East Liverpool may receive another pottery, employing between 350 and 400 persons, if hopes, founded upon the



report that the Oakwood China Company, recently capitalized at $150,000, had taken option on the old No. 1 plant of the General Electric Porcelain Company, materialize. J. A. MacCamant, of the new company, announced that the plant would probably be taken over and placed in operation at an early date. The present option can be renewed at the end of fifteen days, if so desired. A large part of the stock has already been subscribed, he stated.

POTTERY NOTES FROM HERE AND THERE

Reports that the Bedford (Ohio) China Co. is to make semi-porcelain ware by machinery that will reduce the labor employed to a minimum have been received with interest in every pottery in the country, and manufacturers and workmen are wondering just how the experiment is going to turn out. The machinery is made by an Akron, Ohio, concern whose claim is that it will take the place of many workers. The Bedford plant in which the first machines are to be installed is to have five kilns.

The Oakwood China Company has been organized for about four years, having been located in a small building where operations were conducted on a small scale. Since its organization the company has been purchasing ware from local potteries and doing nothing but decorating, with a limited number of employes. Some time ago the capital stock was increased from $10,000 to $150,000 and rapid expansion is now under way.

The East Liverpool plant of the General Electric Porcelain Company has not been in operation for four and one-half years, since its owners decided to move. At that time they received very attractive inducements from Parkersburg, W. Va., and decided to relocate the business there. The company dismantled the Ohio plant and removed some of the equipment to Parkersburg. However, ten kilns and all necessary buildings still remain.

Employes of the Great Western Pottery Works, at Kokomo, Ind., participated in a flag raising held recently at the company's plant. A large American flag, purchased by the employes, was hoisted to the top of a tall pole with appropriate demonstrations and ceremonies. The celebration included a number of addresses, music, a parade and a series of patriotic songs and drills.

The Southern Potteries, Inc., at Erwin, Tenn., has begun shipment of its tableware. This is the only tableware plant south of the Ohio River, and it employs three hundred men brought from Ohio and housed in a specially built town. It is now proposed to build a second unit of the factory. Orders from southern customers are sufficient to justify expansion, it is stated.

Copies of the annual report of the United States Potters' Association meeting, held last December in Pittsburgh, have just been mailed to members by Secretary Charles Goodwin. The report is comprehensive and its excellent compilation will be greatly appreciated by the entire membership.

A good production has been noted in the Ohio pottery district the past fortnight and most of the pottery companies are shipping considerable ware. A slight change for the better is observable in the matter of transportation facilities, but there is still considerable room for improvement.

Stockholders of the Findlay (Ohio) Clay Pot Company have voted to increase the capital stock of the company from $150,000 to $400,000. The increase will be given to shareholders as a stock dividend. C. H. Lambie, of

May We Co-operate or

Don't you object to poor burns?

Co-operation means that your ability and skill in burning your own material is combined with our very broad experience, all directed by the Veritas Firing System.

The combination is unbeatable and does produce better goods, more cheaply, and in less time.

Already the system is in use on over 150 plants, burning more than 1,000 kilns each week.

Such firms as The Hyraulic Press Brick Co. of Cleveland, O., and The Dover Fire Brick Co., of Cleveland, are successful users.

We guarantee results. The cost is only a fraction of the usual heat measuring devices.

Write now to us.

The Veritas Firing System Co.
Trenton, N. J.
and Herbert Forester, Box 37, Cleveland, O.

THE HILL CLUTCH CO.

"Entire Transmission Equipment"

"We are pleased to advise that in 1910 we purchased from the Hill Clutch Company practically the entire transmission equipment for a new plant (No. 2) which we were erecting at that time.

"Our Superintendent and Machinists have often remarked that if the balance of our machinery and power equipment gave as little trouble as the 'Hill' transmission equipment installed at our plant No. 2, that it would be very much easier and more economical to keep the equipment in working order."

The National Clay Works, Mason City, Iowa, used some Hill equipment in their first plant in 1908, and it proved so satisfactory that they came to us for **entire transmission equipment** for plant No. 2. The foregoing letter tells the result. It is not necessary for us to point the moral.

We have a catalog giving valuable information on the subject of transmission. Write for a copy if you are interested.



The Hill Clutch Company

Cleveland Ohio

SAY "I SAW IT IN" BRICK AND CLAY RECORD



FOLLOW THIS MAN

You'll see him make 20 to 25 trips an hour between the cutter and the dry shed—160 brick each trip—one man trucking 30,000 to 40,000 brick daily. You'll see him doing this easily, and incidentally

SAVING $104 PER MONTH

You'll see better and more perfect brick because they are not handled individually after leaving the cutter.

There are three Drymore Systems—one will suit your conditions.

Drymore—
FOR LESS

The Drymore System, Galion, O.

Here's a Useful Book

STEAM POWER

By C. F. Hirshfeld, M. M. E., and T. C. Ulbricht, M. E., M. M. E.

This book is understandable throughout.

It gives a correct viewpoint with regard to the use of heat in the power plant, and supplies the tools required for the solution of power plant problems of the common sort.

Mathematical treatment of the subject has been eliminated to the greatest possible extent.

The book contains a large number of carefully chosen illustrations, which will be found especially valuable.

And anyone familiar with elementary algebra should be able to understand readily such equations as it has been deemed necessary to include.

428 *pages*, 5¼x8, 232 *figures. Cloth*, $2.00 *net.*

On Sale Thru "Brick and Clay Record's" Book Department, 445 Plymouth Court, Chicago, Ill.

Washington, Pa., is president and treasurer of the Findlay company.

Tampa, Fla., gains a new industry in the formation of the Electric Fixture Company, which has filed application for articles of incorporation. The concern is capitalized at $15,000, and the following officers have been chosen: J. F. Pierce, president; W. C. Black, vice-president, and James C. Handly, secretary-treasurer.

Michael D. Helfrich, of the National Pottery Co., at Evansville, Ind., was one of the large donors to the fund recently raised in Evansville to bring Moore's Hill (Ind.) college to that city.

John M. O'Halloran has purchased a tract of ground at 223 North Front Street, New Haven, Conn., upon which he intends to erect a pottery manufacturing plant. Mr. O'Halloran was in the pottery business in New Haven several years ago.

B. E. Allen, of East Liverpool, Ohio, has taken over the old Patterson pottery at Wellsville, Ohio, and it will be operated by the Sterling China Co., of which he is secretary and treasurer. Vitreous hotel china ware will be the product of the new concern.

The Virginian Potteries Co., which operates a factory at New Lexington, Ohio, has selected a site of about six acres in South Charleston, W. Va., upon which it will erect a large porcelain electric insulator plant.

Two decorating kilns are now being erected at the National China Company's plant, Salineville, Ohio.

* * *

A Bit of Hackensack Brickmaking History

The Bergen County (N. J.) Historical Society has in its collections at Hackensack a number of brick which were made in Holland more than 200 years ago and imported by the early settlers in Northern New Jersey for use in building their houses. In the construction of these houses, many of which are still standing, mortar or cement is conspicuous by its absence, a mud mixed with straw having been used for this purpose.

The brick on exhibition are smaller and thinner than standard American brick, being about three-fourths inch shorter in length, one-half inch in width, and about one-half inch in thickness.

Later, clay deposits were discovered in this vicinity and John Zabriskie established the first yard near his home in New Bridge, or North Hackensack, probably about 1740, a hundred years after the settlement of Hackensack. Zabriskie used Holland-made brick in the construction of his house which he built in 1735, but later changed it somewhat and put into the front gable work brick made in his own yard. This house is standing today as solidly as when originally built and the brick are in perfect condition. Stone, which is also used in the structure, has had a slightly different experience, suffering badly in many places from deterioration. Brick making in Hackensack did not attain large proportions until 1836. Since that time the yards have been operating continuously and are manufacturing 30,000,000 brick a year.

* * *

A few years ago land in the region of "Willow Pond," in Spencer County, Ind., could be bought for six and seven dollars an acre. Since the land has been tiled properly its value has jumped to $100 an acre and much of it could not be bought for $150 an acre. The land forms a tract between Evansville and Rockport.



The BIG CITY *is* STILL OPTIMISTS' CAMP

(*Continued from Page* 1035)

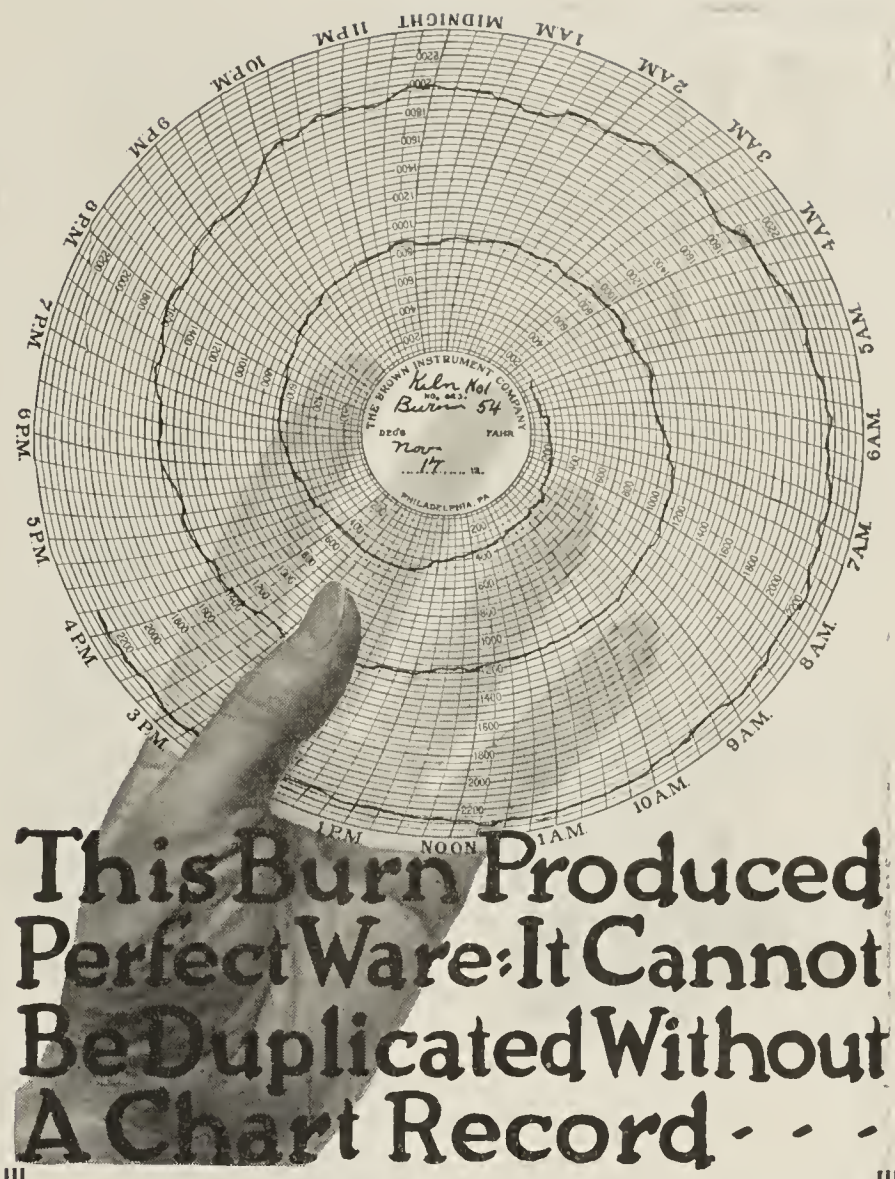
compared with prices that may prevail a year hence. Whether the war ends in a year makes no difference in the eyes of some people familiar with the conditions, for there can be no decrease in the cost of materials as the demand for structural materials, especially after the war, will be greater than ever before.

War means waste, destruction, but this, the greatest of all wars, means the greatest waste since Noah's time, and couple this fact with the lack of development because of the prolonged marking of time of American investors and it doesn't take a Solomon to point out that "after the war," whenever that may be, will find demand so powerful that it will take tremendous effort to meet it. Experts believe there will be tremendous competition created and consequent price increases far beyond present levels.

TERRIFIC INROADS ON LABOR FORESEEN

But when one considers that volunteers for army and navy services have depleted the ranks of workers already, that conscription will make terrific inroads on labor, skilled and unskilled, that coal is so scarce that New York may be heated with gas, and that an already much upset labor market must be further disturbed by calls for men to plant and harvest in order that America and her Allies may keep from starving to death, why shouldn't folks sit up and take notice?

Justification for the thought that a continued slackening in demand for materials will result in reducing profits and handling expenses to the narrowest margin and result in lower figures to the consumer, appears to be a mere straw. And yet some people will grasp at straws even in war time. It would seem tho that any reduction would be merely temporary—pending the ending of the war—for by all the laws of nature and considering all of the foregoing and other facts it does seem as if a return to other standards is not to be, at least for several years to come. The great factor in the building business is labor. Man power is the essential thing and man power costs money these days. As long as the slaughter continues on the other side of the Atlantic so long will the scarcity continue here and the more scarce the laboring man becomes the more valuable he is. When $3 and $3.50 is paid to an ordinary unskilled man for eight hours' work, times will have become serious. Thousands of able-bodied men will be conscripted for war service and thousands are being mobilized for farm work—a drain that is going to make the labor question very acute. Builders saw this cloud some time back and they foresaw delays on the railroads, uncertain deliveries, shortage of labor, with increased costs all along the line. Now the average builder is beginning to feel that there is little in it for him, no matter how competent or careful he may be. This is what has restrained speculative projects. Urgent business, of



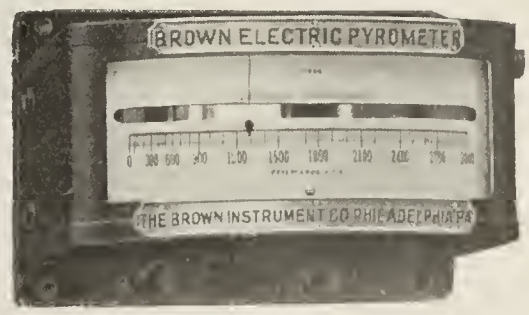
This Burn Produced Perfect Ware: It Cannot Be Duplicated Without A Chart Record - - -

Get a good burn and stick to it—is the unvarying rule of the progressive brick man today.

He who has a Brown Pyrometer equipment on his kilns gets a "Good burn" every time because he fires to a schedule.

Look at the fine Brown record on the chart above. At 6:00 a. m. kiln was 200°—noon, 600°—6:00 p. m., 800°—midnight, 1000°—6:00 a. m., 1200°—noon, 1400°, etc., and then after getting 2200° at 4:00 a. m., second day, he held this for 11 hours steady. "Some firing."

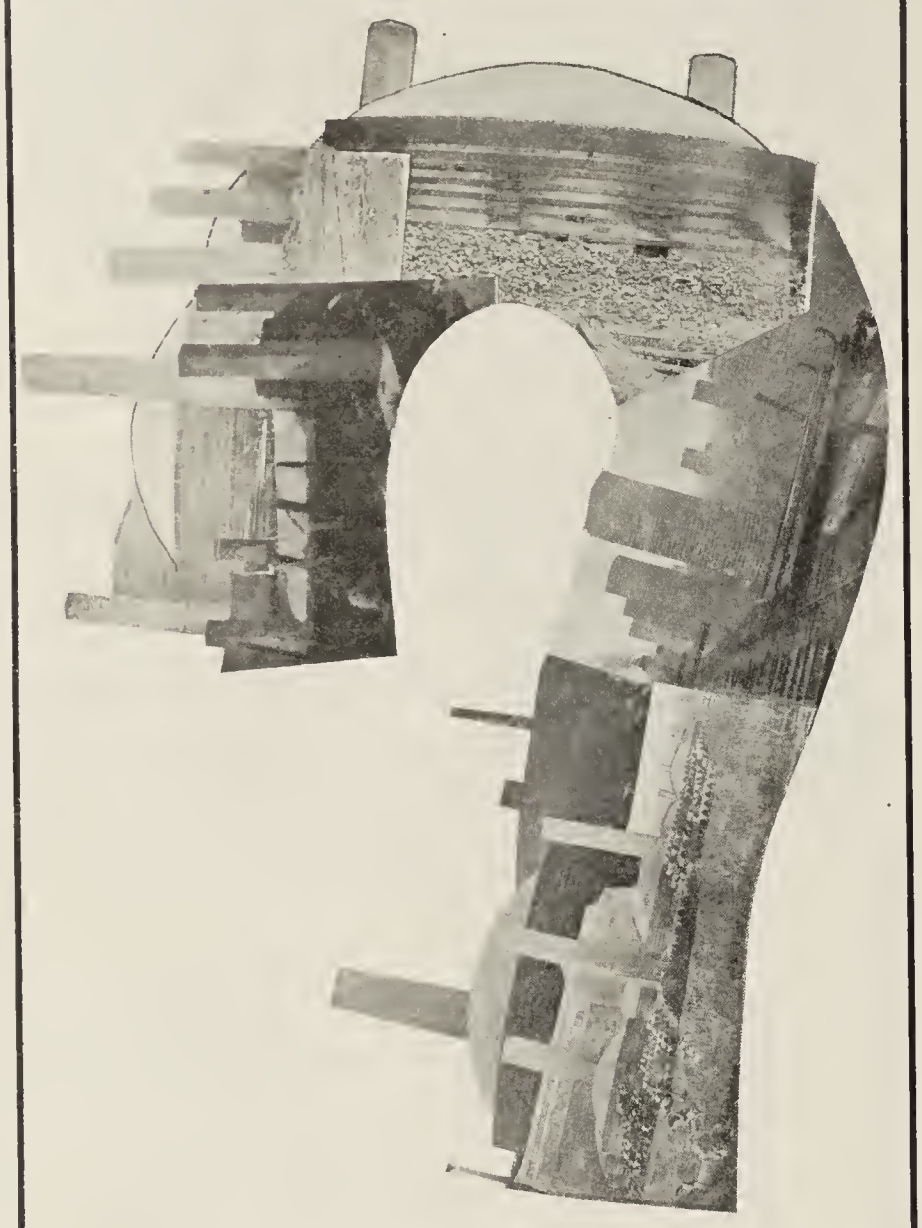
Install a Brown Pyrometer equipment and save money. Write for full information to the Brown Instrument Co., Philadelphia, or one of their offices in New York, Pittsburgh, Detroit or Chicago.



Brown Pyrometers

SAY "I SAW IT IN" BRICK AND CLAY RECORD

IF IT'S A QUESTION OF KILNS— WE CAN ANSWER IT





Equally efficient in round, square or rectangular kilns, single or multiple stack type. New Hook Kilns cost less, as a rule, than kilns of other styles. Old kilns can be changed to our type at comparatively small expense.

Give us number and size of your kilns, kind of ware, burning time and fuel consumption. We will estimate cost of installation and saving that can be effected.

Grate Bars, Bands, Lugs, Ventilators, Castings

HOOK PATENT KILN CO.

High and Spring Streets

COLUMBUS, OHIO

course, must and will proceed, but its urgency must be clearly evident and contractors will insist on the strongest guarantees.

BOOM ON IN NEW JERSEY

New Jersey, that part of it immediately adjacent to New York and which in practically every way but geographically is a part of the largest city in the world, is being looked upon with more than passing interest by building materials dealers and real estate men in Manhattan just now. The reason is that thruout the territory where New York business men live, in such cities as Asbury Park, Long Branch, Perth Amboy, New Brunswick, Metuchen, Plainfield, Bound Brook, Rahway, Elizabeth, Newark, Jersey City, Hoboken, Montclair, the Oranges, Paterson, and Passaic, there is a healthy building boom that may be just so strong that if Westchester County, New York, and Long Island will respond the decrease in the big city may be somewhat offset.

The first week in May saw price changes aplenty and decidedly upward in practically every department of the building material market, except brick, Hudson commons remaining at ten dollars even and Raritans at $10.50. The lumber list was changed almost from top to bottom and linseed oil advanced to $1.22 to $1.26 a gallon. Portland cement prices remain at $2.12 a barrel, New York, nominally, but some companies are quoting as high as $2.30 a barrel for future delivery. These prices are covered and do not make the market. Definite general upward prices approximating twenty cents a barrel are expected.

N. Y. FIGURES REVEAL STUPENDOUS LOSSES

For the week ending May 5, plan filings for new buildings for New York City totaled $1,524,104, and $149,498 for alterations. For the same week in 1916 the filings for new buildings totalled $6,542,505, and $516,695 for alterations. But even more pronounced is the falling off in figures submitted for the week ending May 12 when the filings for new buildings only totaled $1,528,748 as against $10,035,535 for the same week in 1916. A falling off of nearly nine million dollars in new buildings naturally has its effect even in a camp of optimists. From January 1 to May 12 the total filings for new buildings in New York reached $42,684,340, and for alterations, $7,857,297, whereas in the same period of last year new buildings totaled $66,653,900, and alterations $10,142,844. The war therefore is blamed for a drop of nearly twenty-seven million dollars in 1917 projected building operations as against 1916 when about January 1 all signs pointed to 1917 as being likely to be the banner year in the history of the Greater City.

* * *

Motor Trucks Solve Car Shortage Problem

In order to get its brick delivered in Louisville the Southern Brick and Tile Company is using motor trucks to bring them in from its plant outside of the city. The car supply is very serious, it is said at the plant, and the only way to get the brick to market is to deliver them by "gasoline cars." The company has been making use of the electric railway lines to ship brick to consumers in the territory close to the city where these lines reach, but this is not doing any good in the way of taking care of the extensive and general demand from the rural sections of the state. The supplies of brick which are ordinarily carried by the retail building supply dealers in the smaller towns are virtually exhausted, it is said. The Southern Brick and Tile Company is completely sold out of drain tile. The plant is operating full time.



A BUSINESS CLASSIFICATION of CURRENT LEGAL DECISIONS

(*Continued from Page* 1043)

title to or interest in the property of the corporation; the title being wholly vested in the corporation. When a corporation ceases to exist, its property belongs to the persons who are its stockholders at the time; it being no longer capable of holding title or possession.—Rossi vs. Caire, 161 P. (Cal.) 1161.

As a general rule, a corporation is not liable for services rendered by a promoter, tho the promoter may recover for services where it appears that he expected to be compensated therefor, that his services were rendered at the request of or under contract with the associate promoters or a majority of them, and where the acts done were necessary to the organization and its objects and the corporation received and enjoyed the benefits.—Van Zandt vs. St. Louis Wholesale Grocer Company, 190 S. W. (Mo.) 1050.

A person desiring to rescind a contract for fraud is entitled to a reasonable time in which to investigate the facts, and, unless there is such delay that reasonable minds would not differ, the question of what is reasonable time is for the jury. A delay of eight days for a seller in Kansas City to investigate curb market price of stock in New York, not regularly listed, before rescinding a contract to sell because of fraud in stating market price, was not as a matter of law unreasonable.—Dawson vs. Flinton, 190 S. W. (Ala.) 323.

A postal card contained the following communication: "In re Unique Tailor Company vs. Fox, District Court. Your breach of stipulation has caused this case against you to be again placed in the hands of the proper officials for serving of summons and complaint—this was held up since August 2 and was to be held until the 18th inst.—you will find same directed to you at proper address this time and no nonsense will be tolerated as before." Other cards stated that that suit would be entered at once unless the addressee acted promptly. *Held,* that the mailing of the cards was a violation of Criminal Code, denouncing the mailing of postal cards on which is written any language of a threatening character, or calculated and obviously intended to reflect on the character or conduct of another; all of the cards being threatened, and the first one in a measure intended to reflect on the character of the addressee.—United States vs. Prendergast, 237 F. (U. S.) 410.

A note delivered to a payee residing in Illinois, but which was executed and delivered, and by its terms made payable in Missouri, was to be regarded as a Missouri note.—American National Bank vs. Allen, 190 S. W. (Mo.) 947.

Where a creditor receives a conveyance of only so much property as is sufficient to satisfy a pre-existing indebtedness, and receives it in good faith for that pur-

GANDY Belts

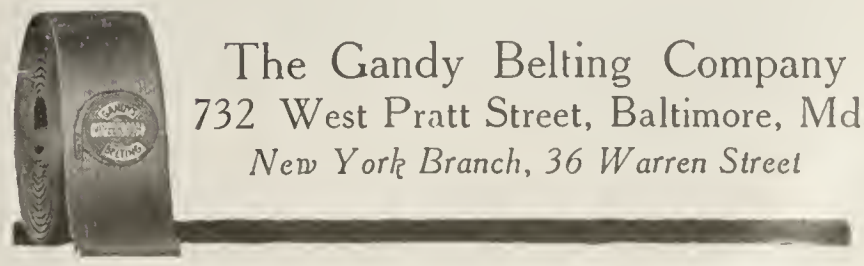
Utilizing the greatest per cent

of available power is a constant problem in factory operation. That's why belting—the power transmission agent—receives so much thought in an analysis of factory overhead.

Buy belting *carefully.* Be sure it will resist water, steam, dirt and grease, that it won't stretch and slip—just when you're on a rush job.

You will be safe if you order Gandy Belting. For nearly 40 years it has retained its prestige, because it is made right. It will continue pliable, will retain its grip with the minimum stretch or slip in the face of unusual exposure.

Quality is built into Gandy Belting. Give yourself the opportunity to prove this.



The Gandy Belting Company
732 West Pratt Street, Baltimore, Md.
New York Branch, 36 Warren Street



Figure it up yourself

Here is the data in brief and in understandable terms:

Sand Lime Brick require 95% sand and 5% hydrated lime—the machinery equipment is not complex or expensive—the brick are not difficult to make—and they sell at a high price.

Data from Installations—The North Indiana Brick Co., Michigan City, Ind., is making forty thousand brick per day on one press (seventeen hours) with twenty-five men, which includes a superintendent, day and night engineer, sand men and brick handlers.

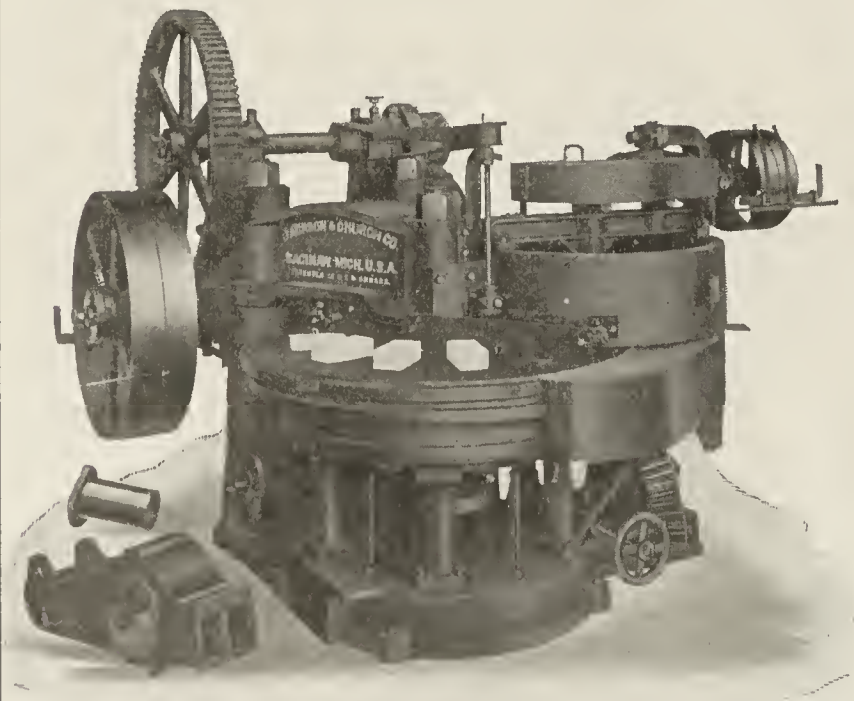
The Saginaw Brick Co., Saginaw, Mich., is making thirty thousand brick per day (ten hours) on one press that has been in use for fourteen years.

The Grande Brick Company, Grand Rapids, Mich., is making forty-five thousand brick per day (eighteen hours) on one press that has been used seven years.

Good interesting data and wonderful results. Better get more details from the

Jackson & Church Co.

Saginaw **Michigan**



The "Saginaw" Rotary Table Brick Press

pose, the fact that he may know that his grantor is actuated by a desire to defraud his other creditors will not invalidate the transfer.—Sutherland vs. Noggle, 160 N. W. (N. D.) 1000.

* * *

California Labor and Capital Lock Hands

No more strikes or lockouts and an end of boycotting and blacklisting by the establishment of industrial amity between employer and employe is the aim of the commonweal committee of the Oakland (Cal.) chamber of commerce, which has just been organized.

Its membership consists of four union leaders, as representatives of employes, and five members of the chamber of commerce as representatives of the employers. The union men insisted that they should be in the minority on the committee so that there should be no ground for the charge that they were attempting to dictate.

The commonweal committee has been in the process of formation for the last six months and therefore cannot be considered in any way as a war measure. Its main purpose is to try to get back to first principles in industrialism—that is, revert to the days when the employer and employe were so close together that grievances could be thrashed out man to man.

The sentiment of the employer toward this movement to lock hands with the employe, with a view to obviating future labor troubles, is well expressed in the words of one of the members of the committee, representing the chamber of commerce, who said: "It strikes me as the only way employers and employes can co-operate for the best interests of the country. This committee is the best solution of labor troubles.

Regarding the viewpoint which has been taken by labor in looking upon the newly appointed committee, the words of one of its delegates shows that it is entirely and enthusiastically in accord with the movement. "Organized labor's position in the community in relation to all of labor is precisely the same as the chamber of commerce's relation is to all of business," maintains this representative. "When representatives of the two visible heads that speak for and control the destinies of the city get together, their meeting means much to the community."

It would seem that the action taken by the Oakland chamber of commerce in appointing this committee bids fair to be productive of very favorable and satisfactory results, and opens a new avenue by which the employe and the employer may meet to discuss problems which arise, and settle them without resorting to costly strikes and boycotts.

* * *

Protecting the Dealer

Manufacturers and dealers in brick and hollow building tile are looking forward to the date when the Mooney law, enacted by the last session of the Ohio general assembly, becomes effective, which will be July 2. The law provides that all contractors on public works must give a bond, signed by an approved bonding company, to cover the cost of materials and labor. In case the contractor does not pay for either materials or labor the bonding company can be sued for the amount. The law is designed to protect dealers in materials who sell to contractors engaged in public works, where some heavy



losses have been suffered thru failure to pay bills. The date for the enforcement of the law has been set ahead ninety days from the time of the passage of the law to permit anyone interested to file referendum petitions.

* * *

Flags Raised at West Virginia Plants

The Claymont Fire Company, at Zalia, W. Va., raised a flag May 5, amid the cheers of the workmen and the blasts of the whistle. J. A. McKenzie made a stirring patriotic speech and T. Thompson and Charles Reed raised the flag to the top of the pole.

The West Virginia Fire Clay Manufacturing Company, at New Cumberland, had a flag raising May 2. The employes at this plant, as at many others, are showing their spirit of loyalty and patriotism and unfurled "Old Glory" to the breeze with great ceremony. The whistle blew and the employes saluted the flag of the nation and pledged allegiance.

The office force of the Mack Brick Company, New Cumberland, had a flag raising of their own May 5. At a number of the plants of the Mack company flags have been raised and the office employes were not going to be outdone in patriotism.

* * *

What Shakespeare Wrote About the Brickmaker

As the summer approaches, the owners of small brick and tile manufacturing plants thruout the country are getting ready for the season's activities. If they have not already donned the harness and started to manufacture their products, they are busily engaged in cleaning up the yard and making preparations for setting up a new production record during the summer.

Many, many years ago, according to William Shakespeare (or was it Bacon?), the brickmaker followed much the same schedule. After an extended vacation thruout the winter—but let "Bill" tell the story. This is what he is reported to have written regarding the activities of the manufacturer of the "everlasting material":

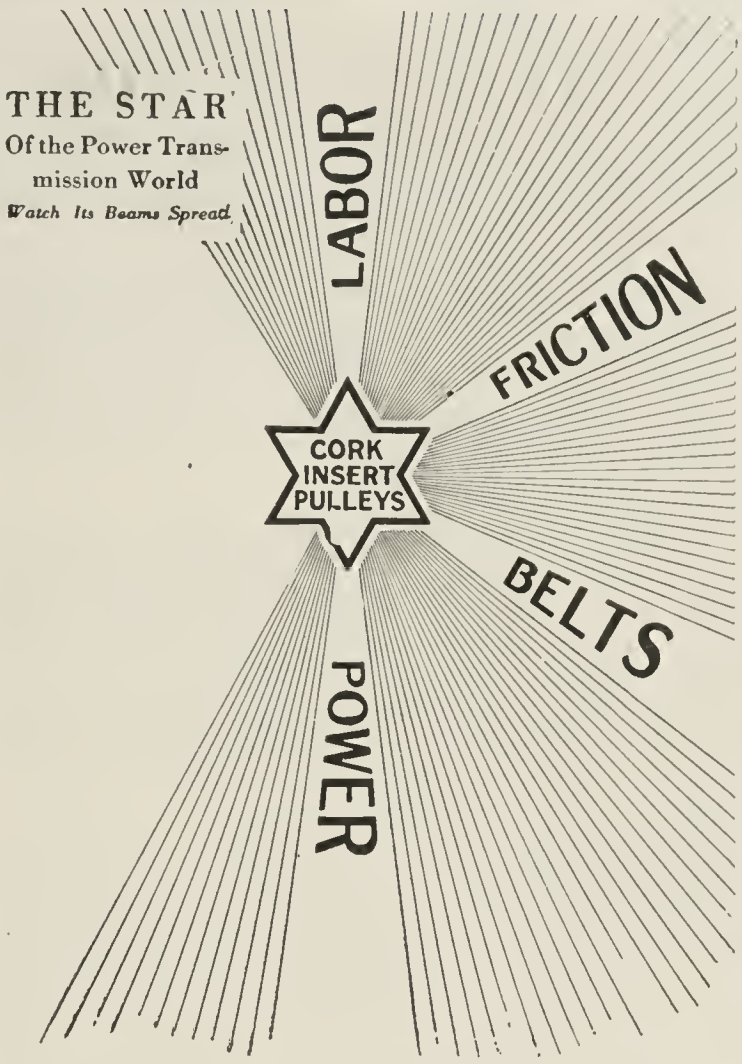
"Just 'fore Easter the brickmaker emerged from his seclusion, cleaned up the yard, and prepared to stir and mould and burn the clay into bricks. His heart rejoiced that soon he would renew his personality of yesteryear, and under the rebirth again become the brick-dust man. He failed to reckon with Time and fickle Spring. He was playing with a bob-tail flush. The snow—dazzling in its purity—covered his brickyard; all its rude, uninvitingness was buried under the virgin whiteness. Then the sun dispelled the snow and left the drying-yard a bed of feculence. And the brickmaker sat him by, like patience on a monument, waiting for the mud to dry.

Announcement has been made by Ben Hitchcock, superintendent of the Portsmouth (Ohio) Refractories Co., that the company will build a new fire brick plant in East Portsmouth at a cost of $75,000.

Turn Back to Page 1046

and Read That General Manager Story Over Again —You Couldn't Possibly Have Digested Its Contents In One Reading—There's Enough There To Keep You Studying For a Week.

Don't Fail to Read The Next One.



The SIX Points of SAVING—

POINT 4

LABOR

You use the same amount of labor to operate a machine whether the machine runs slowly or fast. Furthermore if your machine varies in speed you need more skilled and higher priced labor to avoid seconds or spoilage.

CORK INSERT PULLEYS

maintain uniform speeds even with changing loads or heavy overloads. They are designed to take care of trouble making conditions—such as dampness, dust, oil or water—that cause ordinary belt drives to slip.

CORK INSERT pulleys are particularly desirable at this time of labor scarcity. By their use you cut out labor wastes. Even with piece work their value as labor savers shows in better and increased output. They enable you to reduce your overhead charge and add materially to the value of your labor.

WRITE US TO SHOW YOU how Cork Inserts can increase the efficiency of *YOUR* labor and cut *YOUR* operating costs.

The Cork Insert Co.
168 Federal Street
Boston, Mass.







The Gateway to Better Things

BOOKS

The Master Workman has a Master Mind—he knows perfectly his own merit, and in order to increase his knowledge, he studies the methods of other men— in the only way that he can—in books. If you would be master of your work you must read and know what others know.

Here is our selected list for those who work in clay:

Bricks and Tiles	$1.25
Brick Drying (English edition)	1.00
Bricklaying, Rudiments of Practical	.65
Bricklaying System	3.00
Brick Work (Walker)	.65
Brickwork and Masonry	3.00
Building Construction and Superintendence, Part 1, Masons' Work	6.00
Bungalows, Camps and Mountain Houses	2.00
Ceramic Calculations	1.20
Clay and Pottery Industries	5.00
Clay Glazes and Enamels	5.00
Clays: Their Occurrence, Properties and Uses	5.00
Clays, Tables of Analyses	2.00
Clayworker's Handbook	2.25
Clay-Working Problems	1.50
Economies in Brickyard Construction and Operation	1.00
Effect of Heat Upon Clays	2.00
Engines and Boilers	1.00
Engineering for Land Drainage	2.00
Estimating Frame and Brick Houses	1.00
Garages and Motor Boat Houses	1.00
Glazer's Book	1.00
Hollow Tile House, The	2.50
How to Analyze Clay	1.00
How to Build Up Furnace Efficiency	1.00
Kilns and Kiln Building	1.50
Land Drainage	1.50
Manufacture of Glazed Brick	2.50
Manufacture of Roofing Tile	1.00
Modern Brickmaking	5.00
Notes on Pottery Clays	1.50
Observations on Pottery	.60
One Hundred Bungalows	.50
Pottery	1.25
Practical Brick and Tile Book	2.50
Practical Farm Drainage	1.50
Producer Gas and Gas Producers	4.00
Refractories and Furnaces	4.00
Scumming and Efflorescence	.50
Seger's Collected Works	3.50
Steam Power	2.00

Select the books that you want the most, and we'll send them to you postpaid upon receipt of price, but we can't send any books on approval. All foreign books subject to 15 per cent import duty.

Address, **Book Department,**

Brick and Clay Record
445 Plymouth Court, Chicago, Ill.

EXTRA! EXTRA!

GET YOUR EXTRA HERE!

all about

FRANK HOPLEY CAPTURED!



Frank L. Hopley—Benedict

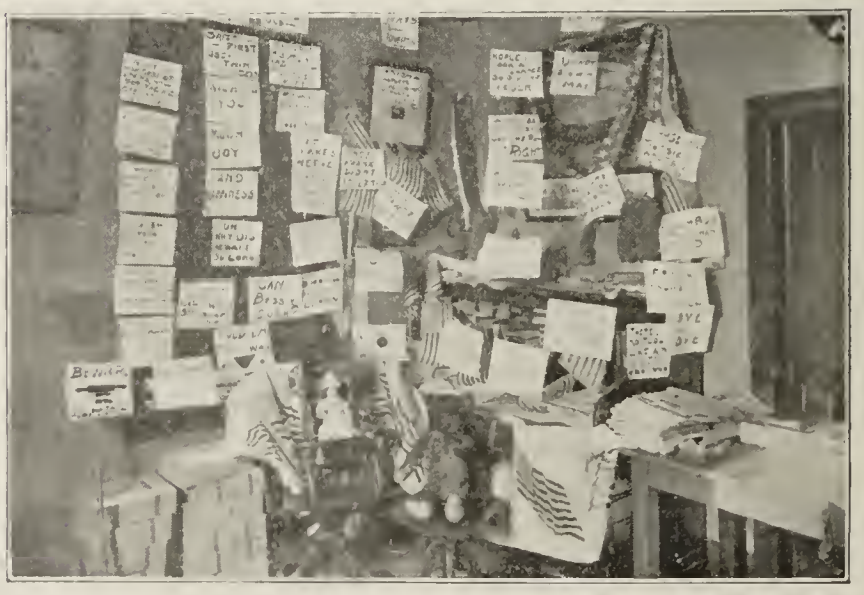
All the older inhabitants of Crawford County, Ohio, were startled with this cry on May 2—the good old city of Bucyrus made merry—all because one Frank L. Hopley took unto himself a bride, Miss Bessie Harter, of Oceola, Crawford County, Ohio.

Now, what do you think of that?

Good for you, Frank Hopley—you never yet have failed in anything you set your heart on accomplishing —all because you come from stock that has played a big part in the wonderful strides made by the Buckeye State.

The entire organization of "Brick and Clay Record"— we all are proud to be your friends—extend to you our hearty congratulations. For you and yours we wish the very greatest measure of joy and prosperity that can possibly come to two noble souls. May your happiness be as everlasting as brick—your pathway thru life as smooth as the miles of brick road your enterprise has helped to build.

This is our wish—we pray that it will come true.



The Office Force of The American Clay Machinery Company Took Great Pleasure In Decorating the Office of Mr. Hopley, Advertising Manager of that Company



MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

"A Stitch in Time"

In The Goodyear Tire & Rubber Company's plan for rendering specific tire service to the three million motorists of the United States 15,000 service stations are now included—all identified by the familiar Goodyear sign, and scattered throughout the entire country, reaching even the remotest hamlets.

This far-flung battle line reaching across the continent, has been established in the interest of the great army of American motorists because it is their due. There are many services that all these motorists have a right to expect from these service stations—and which the service stations expect to be called upon to furnish.

In commenting on his company's service policy, L. C. Rockhill, Manager, Automobile Tire Department, The Goodyear Tire & Rubber Company, says, "We feel that we have not done enough when we have built mileage into our tires, for the service is not complete—we must help the user to get this mileage out of the tires. We aim to increase tire mileages by meeting and averting those abuses which shorten tire life and boost tire cost.

"We expect all our service stations to render certain specific services among which are to advise correct air pressures, lest under-inflation work the premature ruin of the tire; to make frequent tests to ascertain whether the original pressure is sustained; to inspect casings for tread cuts and make the timely repairs intended to combat this condition; to test out brakes to insure that they grip evenly; to interchange tires from rear to front wheels to insure uniform wear and endurance; to explain the uses of tire savers and their value when used opportunely; to examine wheels for correct alignment, and to guard you against the one thousand and one forms of tire abuse you may innocently inflict.

"The service that these dealers render is one of prevention rather than of cure. They are advocates of the 'stitch in time' principle. Like the physicians of China, who are paid for keeping patients well, these dealers save their patients enough in tire costs to justify their fees. They aim to apply in advance those remedies and safeguards that form an effectual blockade against the tire trouble 'that might have been.'

"So the question, 'Why is the service station dealer?' may be answered in this manner—he is for your convenience, pleasure and satisfaction. For your tires' full value and their long life."

* * *

Dynamite A Labor Saver

The world today is in need of men. Not alone for war purposes, but for business and industrial conditions. Millions of mechanics and laborers are required to run the world's machinery. With all the available men of the fighting European countries enlisted for military services, search being made for volunteers, and a draft law in our country, means are being sought whereby work can be done with less men. In some phases of farming and industrial work dynamite is being used as a substitute.

Really without explosives we would be in a bad predicament and the extent to which high explosives can be used is certainly amazing. They are used in practically all parts of the world for subsoiling, tree planting, land draining, pit and quarry work.

Dynamite is extensively used as a labor-saver for digging trenches, canals and ditches. In road building, es-



U. S. Army Ambulance Body Mounted on Selden Chassis

In army ambulance service a motor truck must be dependable. It must be capable of performing its duty, against odds, without hesitation—quickly—with absolute certainty.

SELDEN TRUCKS

are dependable to the last degree. Their powerful construction—"IN-BUILT QUALITY"—furnishes them with the vital force to perform with little or no attention, at a minimum upkeep cost, the most severe task to which a motor truck can be put.

Selden Trucks are especially well adapted to the particular requirements of the brick and clay industry—evidenced by the fact that they are now rendering profitable service to a long list of satisfied users.

¾ Ton, 1 Ton, 2 Ton,

3½ Ton, 5 Ton

Worm and Internal Drive

Write us for specific information on the adaptability of Selden Trucks to your business.

Selden Truck Sales Co.

Rochester, N. Y., U. S. A.



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

pecially where heavy grades are to be cut down, explosives do the work of many men.

Dynamite is being used more extensively every season in the clay products industry because it has been clearly demonstrated that it is a big labor saver in getting raw material out of the bank. It reduces the labor cost in this connection because it takes less time to remove a certain number of tons of shale, and it also is a great saving because of the fact that the material is broken up and practically needs no preliminary treatment in a crusher.

E. I. Du Pont de Nemours & Company of Wilmington, Del., have devoted a great deal of time, study and money to the use of explosives in this industry, and their book A-428 revised in March, 1916, entitled "Explosives For Shale and Clay Blasting," is the most complete work that has ever been prepared in this connection. Whether or not any clay products manufacturer ever has given thought to the use of explosives for removing his raw material, it would be well for him to have a copy of this book because of the very valuable information it contains.

"Thou Shalt Not Waste"

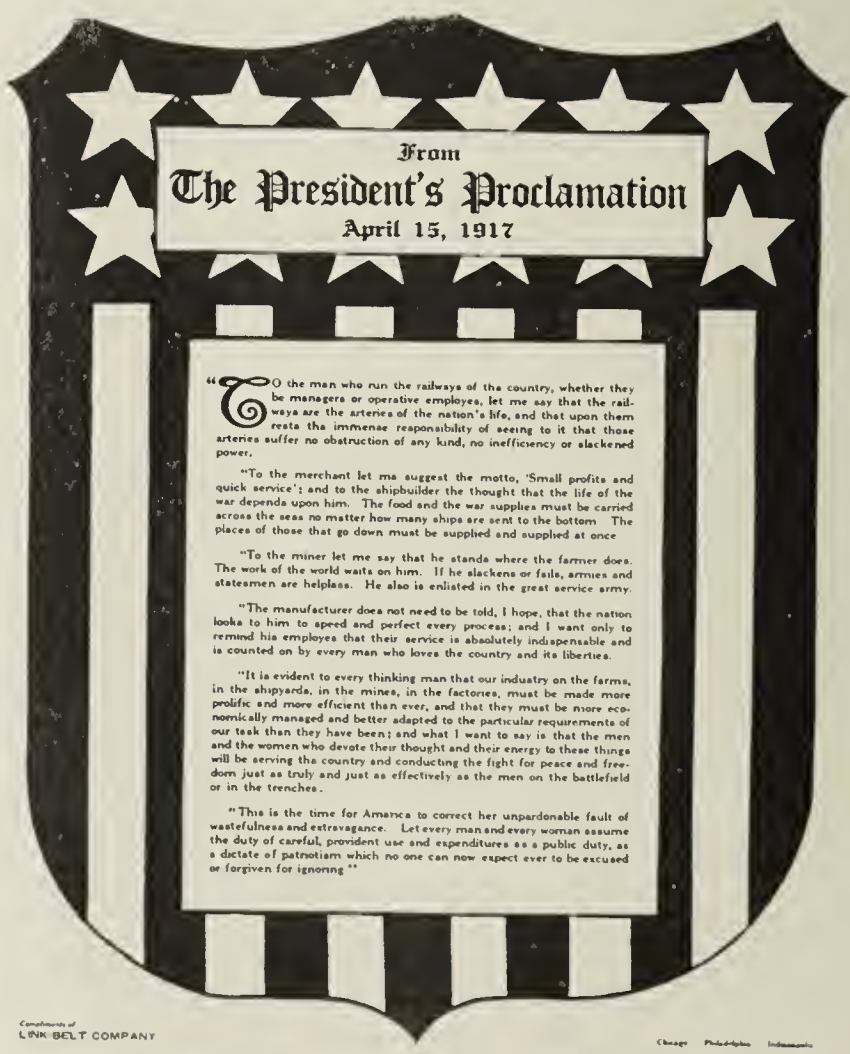
This is the title of a very attractive and eminently useful folder that has just been prepared by Homestead Valve Manufacturing Company of Homestead, Pa. The title is very timely in these days of exhortation about eliminating the waste, and it is particularly applicable because any manufacturer who has made a study of his power plant undoubtedly knows that some very amazing losses have been due to leaky blow-off valves.

The Engineering Department of this company has compiled a table showing in dollars and cents the actual losses due to leaky blow-off valves, and these figures are certainly most astounding.

Inasmuch as every clay products manufacturer is interested in cutting down every item of waste, and particularly in the power plant, it is to the interest of the readers of "Brick and Clay Record" to get a copy of this table and study it.

Do You Want a Patriotic Hanger?

Following its usual custom of being progressive and timely, the Link-Belt Company of Chicago has had printed



Compliments of LINK-BELT COMPANY

Chicago Philadelphia Indianapolis

There is a Place in Your Office for One of These Hangers

SAY "I SAW IT IN" BRICK AND CLAY RECORD

in colors that portion of President Wilson's recent proclamation to the American public, which is of particular interest to manufacturers in every line.

The quotation taken from the proclamation has been inserted in the red, white and blue shield and prepared in the form of a hanger. A reproduction of it is shown on preceding page. It is something that any manufacturer would be glad to hang on the wall of his office, and the company is furnishing it gratis to anybody who writes for one.

* * *

Wm. E. Dee in the Motor Truck Field

Wm. E. Dee, who is president of the following well-known clay companies: the Wm. E. Dee Company of Chicago, Illinois; the Wm. E. Dee Clay Mfg. Company of Mecca, Indiana; the Wm. E. Dee Clay Works Company of Newport and Cayuga, Indiana, and the Wm. E. Dee Clay Products Company of Oak Hill, Ohio, is also president of the Harvey Motor Truck Company, of Harvey, Illinois. Mr. Dee got into this game thru seeking trucks for service in his business, knowing full well that to be up-to-date in deliveries, motor trucks had to be used in order to make prompt deliveries at his different plants.

He and a company purchased the Chicago Commercial Vehicle Company's plant at Harvey, Ill. These people were the first to manufacture trucks in the west and the trucks were used in service on Rush Street, Chicago, as busses, in years gone by. Their plant was purchased by the Harvey Motor Truck Company in 1911, and this company has been manufacturing trucks ever since. They make 2½ ton, 3½ ton and 5 ton trucks for heavy work, as well as tractors. Their trucks are now being used all around the city of Chicago by different material dealers, to whom they can refer as to the service the Harvey gives. They have service stations in the city at different points for giving proper care to their customers. Their trucks have been shipped all over the country and are now being used as far south as Havana, Cuba.

They are well up in the requirements of the building material dealers and especially in the brick line, having just completed a tractor and trailer outfit for the Standard Material Company of Chicago, the owners of which cannot say too much for this outfit. The first purchase of a Harvey by the Standard Material Company was made in April, 1916. This truck gave such good service, running 17,000 miles up to April 1, 1917, and they were so well satisfied with it, that they gave another order for a similar truck as well as an order for a tractor and two trailers.

Mr. Dee insists that this truck be built of the best materials and workmanship, requiring the same high standard as in all the other lines with which he is connected; and that the truck has certainly given service is evidenced by the fact that there are none for sale second-hand and they are used by the very best dealers and merchants in Chicago and other places.

* * *

From Factory to Dealer to Consumer

"The sale of a motor truck involves more than the disposal of a power vehicle," said J. F. Bowan, Director of Sale of the Federal Motor Truck Co. "One element included in every sale is practically uninterrupted haulage service. No sale is complete from the Federal point of view unless this factor is provided for. It is only while the truck is operating to its greatest efficiency that it is giving the most profitable return on investment. To insure continuous service, the Federal Motor Truck Co. has established an original system of service parts distribution —from factory to dealer to consumer—that provides the prompt dispatch of parts and prevention of delays in truck operation."

By way of explanation Mr. Bowan said that the Federal service department fills over 90 per cent. of all orders the same day they are received. It is hard to appreciate this efficiency without having had an opportunity to view the working of the department. The office work is systematized to a high point of perfection, insuring prompt

Producer Gas *for* Brick Burning

Its uniform quality must be assured.

It must be supplied in quantities to meet the varying demands of this particular service.

To insure these results install

The R. D. Wood Gas Producer

A size to suit every requirement.

For the small plant—

The hand poked type.

For large installations—

The mechanically stirred producer.

R. D. Wood & Co.

400 Chestnut Street
Philadelphia, Pa.



Six or Eight Men Will Come to Your Plant and Work for You Without Wages—

Do You Want Them?

The Automatic Electric Elevating Platform Truck is their equivalent.

It carries six times as many brick in one load as does a wheeler with a barrow. It does each trip twice or more times as fast. It does not dump its load. It never gets tired. It is always on the job.

Last year many clay plants saved from $2,000.00 to $3,000.00 per truck used. This year they will save much more.

In addition it is very probable that they will be enabled to run their plants when competitors are vitally effected or shut down entirely by the scarcity of labor which will be acute this season.

We can earn and save you money. Just ask how.

The Automatic Transportation Co.

Buffalo, N. Y.



transportation of orders to the stock room. Here the arrangement of the steel storage bins is so convenient for rapid order filling, that no delays are experienced in rushing out shipments. Huge service elevators, near at hand, care for the heavier consignments, dropping them to the very doors of the freight cars alongside the stock room building. A very careful check is kept on stock so that at no time the company is out of parts, even the most insignificant. In some instances it requires from three to six months to get new material and a prolonged delay would result to owners if these items were out of stock.

To further insure perfect service to customers the company requires all of its dealers to carry a complete stock of replacement parts at all times. Most of the orders coming into the factory service department are from these dealers, showing that the users of trucks appreciate Federal dealer service and are availing themselves of its benefits.

A most complete parts book is put in the hands of every user, and by means of the detailed descriptions and illustrations it contains, it is a simple matter for the average Federal truck user to order from his dealer or direct from the factory stock department with the certainty that he will get what he wants.

A complete record is kept of every truck that leaves the Federal factory so that orders coming into the stock room are filled promptly and with little possibility of error. In this way the department keeps in constant touch with the trucks in use and from time to time furnishes such service to the user as will help him in keeping his unit operating to its fullest efficiency.

Duplex Doings

A new publication of DUPLEX DOINGS, called the "Heavy Haulers' Magazine," Volume 1, No. 1, dated May, 1917, has just been mailed. It is published in the interests of motor truck users, and is the product of Duplex Truck Company, Lansing, Mich.

It is very much alive with interesting stories of performances of the Duplex truck, which has in so short a time made such a splendid reputation for itself as a wonderful power plant.

The Duplex truck has been a very important factor in road building in many sections of the country because its four-wheel drive feature enables it to pull itself with a heavy load and even with a heavily loaded trailer thru almost any kind of obstruction.

DUPLEX DOINGS will be mailed to anybody interested in the use of motor trucks.

Link-Belt Data Book

Many of the readers of "Brick and Clay Record" already possess the Link-Belt Silent Chain Data Book No. 125, 1916 edition, which is the only work of its kind that has ever been published. The 1917 edition is just off the press and it has been enlarged and contains many additional matters of interest in connection with the use of Link-Belt products.

One of the most important features in this book, however, and which will especially appeal to any manufacturer interested in power transmission, is the various tables that have been so carefully worked out by the Engineering Department of the company.

Altho this book is a very valuable one and very expensive to publish, the Link-Belt Company of Chicago is anxious to mail it to any clay products manufacturer interested enough to write for it.

At a meeting of the board of directors of the Walter A. Zelnicker Supply Company, St. Louis, held April 19, A. R. Topping was elected secretary of the company. Mr. Topping has been associated with the Zelnicker Company for the past eleven years, and his advancement has been rapid.

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Standards of Practice for Business Publications

The publisher of a business paper should dedicate his best efforts to the cause of Business and Social Service, and to this end should pledge himself: 1. To consider, first, the interests of the subscriber. 2. To subscribe to and work for truth and honesty in all departments. 3. To eliminate, in so far as possible, his personal opinions from his news columns, but to be a leader of thought in his editorial columns, and to make his criticisms constructive. 4. To refuse to publish "puffs," free reading notices or paid "write-ups;" to keep his reading columns independent of advertising considerations, and to measure all news by this standard: "Is it real news?" 5. To decline any advertisement which has a tendency to mislead or which does not conform to business integrity. 6. To solicit subscriptions and advertising solely upon the merits of the publication. 7. To supply advertisers with full information regarding character and extent of circulation, including detailed circulation statements subject to proper and authentic verification. 8. To co-operate with all organizations and individuals engaged in creative advertising work. 9. To avoid unfair competition. 10. To determine what is the highest and largest function of the field which he serves, and then to strive in every legitimate way to promote that function.

The EDITOR'S CORNER

Some Proposed Legislation That Threatens the Progress of the Clayworking Industry

FOR MANY DAYS the proposed $1,800,000,000 war revenue bill has been very much a topic for discussion in all branches of industry. The suggested taxes in this will hit very nearly every business man, as well as numberless individuals.

It is safe to say that ninety per cent. of the industries which will be affected when the bill is passed are willing and expect to pay a much higher tax during the next few years than they have in the past. In fact, the usual sentiment being expressed by the business men of this country in connection with the present national emergency is: "Take our profits but leave us our business." It is in harmony with this feeling that we approach the subject of the proposed increase in second-class postage, concerning which we wish to say a few words to our readers.

A few weeks ago the House of Representatives passed the $1,800,000,000 war revenue bill which included a provision to increase existing second-class postage rates, applying to all periodicals, from one cent a pound to an average that will ultimately reach at least four cents for most publications. The original proposal was to raise this figure to an average of 4.2 per pound or an increase of 320 per cent. by means of instituting a zone system of rates. The House, before it passed the bill, lowered somewhat the charges but retained the zone system.

The bill is now in the hands of the Senate Finance Committee, which will shortly report it to the Senate. When this body passes the bill it will go into conference, from which it will no doubt emanate in its final form.

For ninety-three years following the laying of the foundation of this Republic, it had been the custom for the subscriber to any periodical or magazine to pay the cost of delivery. In 1885, entirely on the initiative of Congress and without a word of suggestion from publishers, certain legislation was enacted which reduced second-class postage to a flat rate of one cent per pound. Immediately following the passing of this law the publishers assumed the entire cost of delivery of their magazines, feeling safe in doing so upon the basis of the above mentioned legislation.

It might be interesting to the readers of *Brick and Clay Record* to examine the reasons for Congress reducing the second-class postage rate to one cent per pound. Believing that it was absolutely essential for the welfare of the Union to abolish sectionalism, Congress resolved to do all in its power to promote the interchange of information and news between all sections of the country and, recognizing the various publications in existence at that time as being great educational factors, it decided to remove all barriers to the unhampered distribution of such mediums. For Congress to pass a law at this time reinstating the zone system of charges on the mailing of all publications would be to revert to conditions existing before 1885 and throw the burden back upon the subscriber where it originally rested. Every thinking man must admit that such a step would be a decidedly backward movement and, inasmuch as we have our faces set forward, we feel sure that no one in these United States of America, even in this present emergency, wishes to do anything that will interfere with the nation's ultimate progress or that of any of its industries.

America's publications cannot stand the proposed increased cost of mailing, nor do they believe that their subscribers will be willing to. A multitude of statements setting forth actual conditions have been submitted to Congress by the publishers, all of which indicate that the proposed legislation will be ruinous. It will drive many worthy publications out of existence. In the case of *Brick and Clay Record* it would increase the cost of mailing the paper to you to such an extent that it would take a large part of the present subscription price. If this were not increased, it would result in handicapping our organization so that we could not possibly give the clay products manufacturers of this country the service which we are now offering.

We, in common with all patriotic business men, are willing to stand any just and reasonable war tax upon our profits, if there be any, but we think that our readers will agree with us that in justice to themselves, to the progress of the industry, and to ourselves as publishers, all proposals to increase the second-class postage rate be abandoned. You can "do your bit" in bringing about such a result by letting the members of Congress "hear from home." Write your senators, telling them you oppose throttling the business press.

* * *

A Big-Visioned "Man on the Wall"

IT HAS BEEN the experience of those of us who have been sufficiently long in the business to have attended a number of clayworking gatherings, to see offers made at various times by representatives of the bricklayers' union to co-operate with the manufacturers of the ever-lasting building material in getting the public to use more brick. We want to say right here and now that these offers of co-operation

have been highly commendable and praiseworthy, and while they have not always resulted in some tangible accomplishments, a good spirit has characterized these advances by the bricklayers.

Be that as it may, there is at least one bricklayer union official who has put his words into action, so much so that when he speaks he usually tells us what he has done instead of what he is going to do. This man is Hal B. Stroup, President of the Ohio State Conference of the Bricklayers', Masons' and Plasterers' International Union, Martin's Ferry.

Mr. Stroup has been very modest regarding his work and for this reason we have taken great pleasure in devoting some of our space in past issues to an account of his activities in the Buckeye State. He has written us, telling of some further accomplishments which we will detail in the June 19 issue of *Brick and Clay Record.*

At considerable personal sacrifice to himself in both money and time, Mr. Stroup has had a miniature brick house erected and exhibited at various points. He has also written some interesting appeals to his fellow workmen, thruout the state, all of which will be touched upon in the next issue.

Mr. Stroup is a big, broad visioned, generous and progressive trade unionist and we take off our hat to him as a man who does things. May his tribe increase!

* * *

Save the Coal!

THE MATTER of economizing in fuel is something that should receive the closest attention of every clay products manufacturer.

No doubt the coal situation has consumed a great many of our waking hours, to say nothing of sleepless nights spent in wondering how fuel was to be obtained for the next few days' operation of the plant. The possibility of getting shipments of coal at almost any price has been pretty well thrashed over by our readers, so it is entirely superfluous for us to say anything on this particular phase of the subject at this time.

What we wish to speak of and emphasize, however, is that there are ways in which we can economize on fuel—efficiency methods which we can adopt that will make the available supply go a great deal farther than it does at the present time.

You have received, in days gone by, some pretty "hot shots" aimed at those inefficient furnaces which you have that are consuming more coal than is necessary to burn your ware. We have often talked to you about the advisability of discarding those old slanting grates and in their stead substituting a modern and up-to-date fire box. You may have felt that, "Well, coal is cheap anyway and it will cost me a great deal to put in new grates, so I will let it go another year." Times have changed. Coal costs two and three times as much as it did a year or two ago and the installation of a more efficient furnace is now no longer a "hifalutin' idea." It means dollars and cents to you.

Producer gas for burning all kinds of clay products has been talked of from one end of this continent to the other, and while we cannot say that the problem of using this type of fuel on all plants has been solved in every detail, we do contend that there are great possibilities for fuel economy and bigger profits in the adoption of a system of gasifying coal and burning it in this form instead of shoveling it on the grates. If producer gas is not yet in such form as to be adopted on every plant, why don't you get busy and see that it is whipped into proper shape? In talking about this very subject, a prominent paving brick manufacturer said, not very long ago: "We, as individuals, cannot afford to conduct as expensive an experiment as the producer gas proposition would prove to be." This manufacturer was correct in his contention but why not get together and finance co-operative tests and investigation? You are throwing away thousands of dollars at the present high price of coal by not being in position to get away from the wasteful practice of burning it on open grates.

Nor has the boiler room been neglected. We have repeated, times without number, that most firemen are criminal wasters of fuel. Lack of a knowledge of proper firing methods and the absence of proper attention to the duties which this workman performs, are responsible for great losses to clay products manufacturing concerns annually. As has been said above, time was in this country when coal was so cheap that few cared how coal was burned. Since that time we have made tremendous progress in the science of combustion until today the black smoke pouring out of a factory chimney is not a badge of prosperity but a sign of inefficiency and waste. To get power out of coal you have to burn it and letting it go up the stack in smoke is not burning it. Any mechanical engineer today can show you how to get proper results.

It is not that we do not have the coal in this country that is responsible for the present shortage but it is a question of digging it out of the ground fast enough and having prompt deliveries made by the railroads at the places where it is most needed. While various agencies now at work are struggling to solve the problem of getting more cars to move fuel, every clay products manufacturer can do his "bit" toward bringing about a more happy state of affairs in the matter of fuel supply, and incidentally add to the roll in his hip pocket, by making some long needed improvements in his burning methods and in the boiler room.

FIRE ATTACK *on* BRICK CONFLAG-



The Brick Chimneys, Foundation Walls, Sidewalk and Streets—in Fact, Everything of Brick Remains, the Wood Has Passed Away

¶Fourteen Months Ago—Almost to the Day—Augusta, Ga., Was Visited by a Destructive Fire Whose Size and Damage Was Largely Due to the Prevalence of Shingle Roofs in the City. Now, the Empire

ONCE MORE THE DEMON FIRE rears its ugly head in the South and, fed by block upon block of frame dwellings, sweeps a wide path thru the residential district of Atlanta, Ga., laying in waste and ruin, all told, about fifty square blocks. At places the width of the swath in the southern city measured six blocks, while its length extended more than two miles.

It is estimated by state officials and insurance men that the number of houses destroyed totals 1,563; the insurance loss is estimated at $2,500,000, and the property loss is believed to approach the stupendous figure of $3,500,000.

When the flames had finally been beaten into subjection after their ten-hour ravaging escapade, lasting from a little after twelve o'clock noon, until ten o'clock at night, approximately 6,000 people had been left homeless—some witnessing in the devastation of their former homes, the destruction of their entire wealth in wordly goods.

FIRE TEACHES COSTLY BUT PROFITABLE LESSON

Possibly, however, the loss and wreckage left in the wake of the fire is not without some salvage—the lesson which it teaches about flimsy as compared to permanent construction may be the means of tempering the great sorrow felt by the city with the hope that a better built—a brick built—residential district will rise from the ashes to supplant that which has been destroyed, to forever prevent the recurrence of another such disaster.

As is true in all other conflagrations which attain the height of fury sufficient to destroy entire sections of cities, investigation brings to light as the cause for the blaze a high wind and frame construction—a pair that is inseparably united in the history of great conflagrations.

Springing into life about twelve o'clock in a small wooden hut located in the negro settlement known as "Darktown," the flames quickly devoured the shack and



This View of the Devastated Area Was Taken from Edgewood Avenue, Looking North Across Houston Street, Where the Fi ages of Fire, Stand as Monuments to Destroyed Homes—At the Extreme Left of the Picture is a Row

FAILS *in* BIG ATLANTA RATION

State of the South is Hit Again by a Devastating Fire at Its Very Capital Where Flimsey Frame Houses With Shingle Roofs Contribute Largely to a Loss That is Estimated at Over Three Million Dollars.



The Homes on This Street Were Destroyed by the Fire for a Distance of Two Miles. If These Homes Had Been of Brick—Oh, Well, That's Different

threw into the arms of a high northeast wind flaring embers and burning shingles which were readily caught and carried until they became a veritable shower of fire brands over the house tops of the long line of negro frame dwellings in Fort, near Decatur Street. So quickly was the blaze passed on to the surrounding houses that within fifteen minutes, more than a dozen homes were ablaze, adding their share to the flying firebrands. As it wrought the total destruction of this section, the fire jumped to Younge and Gatrell streets, where it rapidly laid waste another frame-built negro residential section. At this point the fury of the blaze had become so great that entire structures were consumed, in many cases, in less than five minutes.

FLAMING SHINGLES CARRY THE BLAZE ONWARD

Onward and onward, the flying sparks truly blazed the trail for the oncoming of the parent flame. Leaping and dancing to the tune of falling timbers, the flames jumped from the devastated negro section over five low brick buildings, swept on unobstructed into the better residential districts, and enveloped a large section on Edgewood Avenue. In the heart of this section, on Boulevard Avenue, stood a small drug store solidly built of brick which, according to the Atlanta "Constitution," "withstood the flames and still stands"—a monument to permanent construction.

The fire continued its errand of destruction, practically wiping out the entire section bounded by Hillard Street on the west, Prospect Place on the east, Edgewood Avenue on the south, and North Avenue on the north. As the flames approached the fine residence sections of Jackson Street and North Boulevard, thousands who had gone to watch the fire, began to hurry back home to save what they could. They used buckets and garden hose to



ed Very Rapid Headway, After Jumping from. Decatur Street—Solemn and Austere, the Brick Chimneys, Built to Defy the Rav- Stores, Over Which the Flames Passed to Destroy a Solid Block of Frame Structures Beyond Them.



Representatives of Uncle Sam, Encamped at Atlanta, Rendered Invaluable Assistance in Checking the Spread of the Flames, Which Destroyed More Than Fifty Square Blocks in the Southern City—The Complete Desolation Wrought by the Conflagration Is Apparent in the Above Pictures

wet shingles of their homes, but their frantic efforts were productive of little good, the intense heat in the flame swept area completely drying the buildings long before the flames had actually begun their work of destruction. A blazing shingle, floating from some burning roof would sail high in the air, across a whole block or two, and settle down on another shingle-roofed frame house. There were half a dozen such fires, widely separated, going on at one time in the fire zone, which stretched from the heart of "Darktown," in Decatur Street to Ponce de Leon Avenue.

At North Avenue, North Jackson Street became the western boundary and, with a slight change in the wind, the fire moved steadily in a northeasterly direction, drawing close to and threatening Peachtree Street, the main thorofare of the city.

A dramatic struggle to combat the advance of the flames reached a climax at nightfall when the fire-fighters made a stand at Boulevard Place and dynamited a wide area to protect the Ponce de Leon section. Of the $3,500,000 loss incurred thru the conflagration, a loss of $200,000 was wrought by the use of dynamite to halt the spread of the flames. The first effort, however, to perform with dynamite what water failed to accomplish proved only partly successful and an hour later the dynamiters had to renew their work two blocks beyond. The region bounded by Ponce de Leon Avenue, North Boulevard, St. Charles Avenue, and Lakewood Avenue, was the scene of a final and successful stand of the fire-fighting forces.

BRICK CHIMNEYS MONUMENTS TO DESTROYED HOMES

When finally the flames had been conquered and the spread of the frame-fed fire demon checked, little remained to mark the scene of disaster save towering brick chimneys, which, built to defy the ravaging effect of water, fire and time, stood as monuments to destroyed homes.

Brick and Clay Record sees in a statement regarding the Atlanta fire, made by J. H. Lawlar, former secretary of the Cincinnati (Ohio) Fire Department, and an authority upon the subject of fire fighting and prevention, matter of great interest to brick manufacturers. Mr. Lawlar says: "During twelve years' service I have never before witnessed a conflagration which burned with such rapidity. Not less than two entire blocks of frame houses were destroyed within twenty minutes, in one locality alone. * * * I regard nothing more difficult to combat than a conflagration in a residential section of a city principally composed of wooden structures. The great rapidity with which a fire can travel thru frame buildings cannot be estimated, and the Atlanta flame, augmented by a high wind, was no exception."

BRICKMAKER DESCRIBES BLAZE

A letter describing the fire, which was received from B. Mifflin Hood, president of the B. Mifflin Hood Brick Company, of Atlanta, Ga., throws some interesting side lights upon the part played by brick in the South's great fire. Mr. Hood writes as follows:

"At the left end of the panoramic view which we are sending you, you will observe some brick store buildings. Here the fire jumped a city block of brick buildings without any loss to them.

"In the block behind these buildings were frame houses, all of which were destroyed and the fire was carried forward by the falling embers lighting on shingle roofs of frame construction many blocks away, until it stretched out a distance of over two miles before finally conquered at ten o'clock, after raging continuously for ten hours.

"There were no brick buildings destroyed except those surrounded by frame buildings with shingle roofs, and in one instance a triangle of brick buildings withstood the fire, causing the flames to travel among the frame residences in the shape of a horseshoe around the brick stores.

"Had not the authorities freely resorted to the use of dynamite it would be difficult to say where the fire would have stopped.

"The fire department, early in the morning, had been occupied with the worst fire of the year in West End, at the Chandler Warehouse, the largest cotton warehouse in the city, where military supplies are stored. At the same time fire broke out on the south side, consuming a block in the Woodward Avenue district, so when the fire broke out causing the greatest damage, the entire fire department was occupied by the first two above-mentioned fires and before they reached the conflagration that swept the north and east side of the city it had gained too great headway and was never under control at any time from beginning until late at night.

"The several thousand of United States soldiers encamped at Atlanta rendered most valuable assistance. The citizens' committee and the Red Cross were so efficient that the 6,000 homeless were taken care of the first night. No one is seen complaining, every one has been co-operating and the Atlanta Spirit has been paramount.

"The fire district will be rebuilt with ample provisions for parkways and will be more permanent and attractive than ever.

"The brick manufacturers and those who make fire resisting material are alive to the situation and are getting in good work. All our brick yard trucks, wagons and men worked continuously 'till midnight fighting fire and moving household furniture."

The statement made by Mr. Hood that there were no brick buildings destroyed except those surrounded by frame buildings with shingle roofs is particularly significant and is a point that brick manufacturers and dealers can drive home in their attempt to get across the message of permanent construction.

BRICK STRUCTURES SUFFER WATER DAMAGE ONLY

The triangle of brick buildings referred to by Mr. Hood is, we believe, a group of large industrial brick buildings located at a point in the devasted area which was subjected to the greatest fury of the blaze. In reporting upon these buildings, and not forgetting to mention the fact that they were substantially built of brick, the Atlanta "Constitution" notes "that they passed thru the flames undamaged, save for that suffered from water." Further on it mentions the fact that the structure which housed the Troy Laundry Co. (one of the group) was damaged to such a slight extent that the company announced it would begin business as soon as its working force could be brought together.

A statement appearing in the Atlanta "Georgian" regarding the reconstruction of the destroyed area is also of sufficient interest to warrant reprinting here, for it shows the possibility of a fire safe section rising from the ruins. This paper states that:

"Out of the ashes of the fire-devastated districts will rise better and more modern dwellings that will enhance the city's beauty and its material worth.

"Realty men forecasted this without hesitation on Tuesday. A great volume of building activity already has set in. At least a score of structures were being arranged for while the embers of the old still were cooling.

"Demand for labor will be increased a hundredfold, and the sums to be spent for material will keep all local plants busy at a time when it appeared a season of dullness would obtain.

"Aside from the temporary suffering and inconvenience resulting, the fire loss is looked upon as a net gain It was pointed out by several realty operators that insurance companies will not be struck a serious blow, the huge loss only going to form a part of the losses reckoned for annually.

GREAT GOOD TO RESULT

"A number of the agents, not in the professional optimist class, pointed out that great fires visiting other cities have caused material advancement, new and more convenient and altogether better buildings rising rapidly on the sites of buildings that were burned.

"'It is not to be doubted that Atlanta is now beginning to rebuild, and to do it with a zest that becomes the business-like spirit of the city,' declared President Charles W. Bernhardt, of the Master Builders of Atlanta. 'Contracts for new residences are pouring fast into the offices of dealers, and it is not unlikely that the inpour will increase each day.

"'People now realize that it is an impractical thing to again erect loose and unsubstantial residences, such as those with shingle roofs, and it is for this reason that much thought is being given the subject which will undoubtedly lead to the erection of fine new brick residences with slate roofs.'"

CHICAGO "TRIBUNE" DENOUNCES FLIMSY BUILDING

The protest against America's method of "building to burn," arising from the Atlanta fire, reached even as far from the southern city as Chicago, where the following interesting editorial appeared in the Chicago "Tribune" on Wednesday following the conflagration:

NEED WE BE TINDER?

Seventy five residential blocks of Atlanta, Ga., are in ashes because fire broke out among Negro hovels and spread. So it is easy to declare, "Serves you right. You housed your Negroes in tinder-boxes. Here's the result."

Easy, yes. But most unfair. Scan the list of conflagrations—Chicago, Boston, Baltimore, San Francisco, Chelsea, Salem, and the rest. That the Atlanta conflagration started among tinder-boxes built for Negroes was a mere detail. American cities, roughly speaking—and the time has come for rough speaking in more senses than one—are tinder-boxes thruout.

We detest the old, tiresome, and generally untrue remark, "They manage better abroad," but when it comes to the fire protection they certainly do. In Paris, for example. You can live months in Paris without seeing the fire department. When at last you catch sight of it, the chance is ten to one that a scaffolding has fallen or a sewer caved in. Fire? Nobody in Paris dreads fire. Nothing is funnier, to a Parisian, than the fear our tourists show. Poor, timorous souls, they imagine their hotel might take fire! Whereas it can't nor can much else in Paris. Why?

Because walls are of stone. Because partitions are of stone or brick. Because roofs are of slate or tile. Because floors are of slow-burning oak. Only one source of danger remains. The chimney flue. So Parisians keep boxes of sand on their roofs. If a flue starts blazing, up goes the valet-de-chambre to shovel down sand.

There is a lesson in all this. So long as we build cities largely of wood, just so long we must expect conflagrations. Pine floors, wooden partitions, and shingled roofs invite disaster. To use bricks, stone, tile, and slate instead of wood involves a serious outlay, but in the long run it spells economy. As things go now, we are continually rebuilding cities destroyed piecemeal or wholesale by fire. Indeed, one may say of an American city that the upkeep exceeds the initial cost.

* * *

Rehabilitating Old New England Brick Yards

The shortage of building steel for steel-frame buildings, due in a measure to the governmen's demands for steel, and the high price of lumber, are causing builders to turn their attention to brick construction, with the result that the demand for brick is rapidly reaching the point where it will far exceed the supply. Many New England brickyards already have sold their output a year in advance. Others are rushing work in an effort to catch up with their orders. The backward spring and the condition of the labor market have not been conductive to a large output thus far, and, as a result, prices are constantly climbing higher.

Brickyards that long ago had been abandoned are being refitted and prepared for operation, and the brickmaking industry, which once was one of the leading industries of the state, bids fair to again take its place near the head of the list.

* * *

Cleveland Commons Go to $12.50

The Barkwill-Farr Co., of Cleveland, Ohio, recently announced an increase in the price of common building brick of $1.50 a thousand, bringing the retail price in the "Sixth City" to $12.50, as compared with $13 at Detroit, Mich., $14 at Pittsburgh, Pa., and $17 at Buffalo, N. Y. The same company announces increases which raises the retail price of hollow building tile from $26 to $29 for 5x4x12-inch and from $50 to $56 for 5x8x12-inch tile.

* * *

"Saturday Evening Post" Is Second

It is not *Brick and Clay Record's* policy to publish all of the complimentary letters or remarks which it receives daily from its army of readers—in fact, space that might be taken up with material of this sort has been given over to more constructive matter of value to its readers. Possibly it is for this very reason that the "puff" which we are going to pull off in this item was

made possible. We are going to deviate slightly from our course to tell of a little incident which, in our opinion, contains some real humor and which is not altogether devoid of truth.

One of our readers, holding down the position of manager of the brick department of one of the largest brick selling organizations in the country, leaned back in his chair to exhale a voluminous cloud of smoke drawn from one of the rich Havanas that many of his customers have learned to love. As he lunged forward to swing back in position, he was greeted by a friend with a hearty slap on the back and a thrust into the "cigar pocket" where rests the fine Havanas. Jumping from topic to topic, after business had been dispensed with, the friend and big customer leaned forward and, in a tone of confidence, and earnestness, said: "Tell me, what, in your opinion, is the best magazine published in the United States today."

And without even waiting to draw another puff from the black boy, the brick man "came back" in an instant with the reply: "Why, the best magazine published today is *Brick and Clay Record,* and after that comes the 'Saturday Evening Post.'"

We are still trying to figure out the reason why the customer, who was a stranger to clayworking, either retail or manufacturing, after being shown some of the issues of the "best magazine published in America," so readily and enthusiastically agreed that "by all that's gracious, your right." Did he mean it, or was it that second grab for the inner pocket that prompted the rejoiner?

A War Bill to Relieve Labor Shortage

Pennsylvania clay products manufacturers entertain hope that a bill introduced in the lower house of the Pennsylvania legislature will have the effect of relieving the shortage in labor—for the duration of the war at least. The measure, which is the first of the kind, it is said, that has ever been introduced in legislature, is an extraordinary war measure, the text of which is as follows:

AN ACT

Authorizing the governor upon certain conditions to suspend by proclamation restrictions relating to labor contained in any law of this commonwealth and providing for the publication of such proclamation and the payment of the costs thereof.

Whereas; By act of congress a state of war now exists between the Imperial German government and the United States of America, and

Whereas; At a meeting of the Council of National Defense and its supervisory commission held on April 7, 1917, it was resolved:

"That the Council of National Defense urge upon the legislature of the several states that before final adjournment they designate to the governors of their respective states the power to suspend or modify restrictions contained in their labor laws when such suspension or modification shall be required by the Council of National Defense and such a suspension or modification when made shall continue for a specified period and not longer than the duration of the war," and

Whereas; By article one, section twelve, of the constitution of this state, it is provided that

"No power of suspending laws shall be exercised unless by the legislature or by its authority," therefore

Section 1: Be it enacted by the senate and house of representatives of the commonwealth of Pennsylvania in general assembly met and it is hereby enacted by the authority of the same, that upon request by the Council of National Defense the governor of this commonwealth is hereby authorized to suspend any restriction relating to labor contained in any law of this commonwealth. This act does not authorize the governor to suspend any provision of law for a period longer than the duration of the present war.

Section 2: The suspension shall be made by proclamation by the governor. Such proclamation shall state the provisions of the law which is suspended, the date when such suspension shall take place, and the period for which it shall continue. Such proclamation shall be published in each county of the commonwealth in at least two daily newspapers of general circulation and at least on two separate days.

Section 3: No individual, firm, association or corporation shall be subject to fine or imprisonment as a penalty or to any other legal action, civil or criminal, for failing to comply with any provision of law during the time when such provision is suspended under the authority hereinbefore conferred.

Section 4: The cost of such advertising shall be paid by the state treasurer on warrant of the auditor general out of money in the general fund of the treasury.

A Prominent Figure in the Keystone State

Standing in the fore ranks of the clay products industry in the Keystone State, the figure of L. J. Halberstadt, manager of the Reading (Pa.) Shale Brick Co., looms up conspicuously by virtue of the constructive and effective work which he has done to better the industry. Level headed and business-like, he has strained every effort to bring about in his territory the adoption of uniform prices and to effect a mutual understanding among manufacturers in a local way. One of the most advanced measures ever introduced by Mr. Halberstadt was that of centralizing the output of all clay products manufacturing plants in the Reading vicinity and distributing these products thru a common dealer or agent, to be compensated jointly by all of the companies whose interests were pooled. Altho the endeavor failed of realization yet it reflects in a well defined way the progressive spirit of this figure in the clay products industry. Of all the evil practices prevalent in the clay products industry, Mr. Halberstadt places the crown upon that of price cutting—and especially when a sufficient demand prevails to consume the entire output of all competitors. He promulgates a policy of absolute righteousness toward the dealer and absolute righteousness of the dealer toward the manufacturer in prices and in service, and at the present time is wearing away a little epidermis on the underside of his hand pounding on the table for a severance of relations with the "select brick" habit. "Select brick" in Mr. Halberstadt's opinion, are too few in the present-day kiln to render a profit to the manufacturer.

Work Started on New Harbison-Walker Plant

Constructional work has been started on the new silica brick plant which the Harbison-Walker Refractories Co. is erecting at Dowingtown, Pa., thirty-two miles west of Philadelphia, and is progressing rapidly under the supervision of M. A. Carr. Foundations for two of the six forty-foot round down draft kilns to be constructed have already been laid and a spur track constructed. Bunk houses and a temporary roadway are already in use at the plant. Machinery and equipment are being received and operations, it is thought, will be started about August 15. Dowingtown is on the main line of both the Reading and Pennsylvania railroads.

COMPETITION *is* KEEN—*but* LET IT *be* CLEAN

An Effective Plea and Argument Against the Casting of Aspersions is This, the Second Prize Winning Paper in the Face Brick Sales Ethics Competition

By Arthur S. Fielding

of the Hydraulic-Press Brick Co., Chicago.

THE AMERICAN FACE BRICK ASSOCIATION does not consider "knocking" of advantage to the face brick industry, otherwise it would not have adopted paragraph four of its Code of Ethics which states, "That this Association condemns the practice of 'knocking' competitors' materials or casting aspersions that may be detrimental to the general face brick business, and recommends that its members insist that their employes and selling connections refrain therefrom."

This phase of business ethics is an extremely interesting one, about which there will be much honest difference of opinion. While most will agree that "knocking" is unethical, there will not be such agreement as to just what practices would fall under that term. Therefore, the question arises as to what the paragraph under discussion means. By "practice" must be meant the single act, as well as the repetition, of "knocking." Of course, it is better to be unethical only now and then rather than as a rule. But if "knocking" is bad at all, it must be so when done once or any number of times. To define "knocking," however, does not prove to be as easy. This refers to certain methods of securing business, when the salesman "casts aspersions," uses the mallet, "raps" his competitor and his product, makes statements that are .false entirely or partly, or casts reflections which will cause his prospect to be afraid to patronize the competitor. Yet to make a list of things that are considered "knocking" presents a problem.

WHEN DOES SALESMAN USE THE HAMMER?

It is taken for granted that almost every manager would frown on his salesmen who deliberately use the hammer to secure orders. Yet he is thoroly aware that his salesmen, being rather human, are using all their efforts to sell their own material—not their competitors'. No salesman can make a success who is not filled with unbounding confidence. Can he be thus, if he thinks his competitors' materials are as good as his own? Belief that his brick are the best, his deliveries the quickest, and that the only thing to do is to place the order now—with him—are what "bring home the bacon." Optimism and enthusiasm being infectious produce results. A "live" salesman, by his words and actions, shows that he believes his brick are unequalled for quality and service. This infers that his competitors do not have as good brick. Is this "knocking"?

Suppose a salesman knows a competing brick is not proper for the purpose selected and says so; is he using the hammer?

How can the good qualities of a higher-priced product be brought out, even if no actual mention be made of competing materials, without "casting aspersions"?

How about comparing sizes?

RESOURCEFULNESS OR KNOCKING?

In submitting enamel brick on a large prospect, in keen competition with many other makes, a salesman went equipped for the battle. Believing his produce the best on the market, he wanted to prove it. So he emptied a bottle of black ink into a basin, setting the enamel brick face down in the liquid. Letting it soak until the brick had absorbed the ink, he took it out and cleaned the face of the brick, remarking, "You will observe that my enamel is absolutely opaque." Notice that it has not discolored a particle. It is as white now as before and will last thus forever."

The buyer said, "That is remarkable, but will the enameled brick of your competitors stand the same test?"

"As to that I cannot say. I am here to tell you about my product," was the salesman's reply.

But no sooner was he out of the office before the buyer made his own tests and, finding that the other samples would not hold up, he gave the order to the resourceful salesman. Was this order secured thru "knocking"?

The advertisements of the individual members of associations at times contain references to "the best," "most attractive colors," "unequalled texture,"—and the like. Are these obeying "The spirit of the law?"

Those drawing up this paragraph, however, were experienced face brick men who knew that the biggest factor influencing their salesmen was self-interest. They were also well aware that no rule would be apt to change human nature. It seems clear then that the paragraph against "knocking" refers especially to certain practices which are so unethical that they should be condemned strongly. Just where to draw the line may prove difficult. But so-called "puffing" or boosting one's product would probably not be considered "knocking." That no definition of "knocking" was given leaves the interpretation of what is meant up to the individual member or his salesmen—who would have to determine it, anyway.

KNOCKING MORE THAN UNETHICAL

Yet, even if "knocking" may be unethical that alone will not cause it to cease. The face brick industry, its managers and salesmen, must have a more practical reason given them. They must be convinced that attempting any such method of

securing business does not pay. Believing it does not, *Brick and Clay Record* suggested this competition to the American Face Brick Association and the Face Brick Dealers' Association in its effort to acquaint the face brick salesmen and the industry in general with the facts of the case. After studying the situation carefully, one finds there is much evidence to be advanced against "knocking."

It has been remarked of old that "Every one loves a lover." This has never been successfully disputed nor has the corollary that "Everyone dislikes a 'knocker'." Both are universal truths—for the same reasons. A lover full of optimism and happiness spreads good-cheer everywhere. A "knocker" spreads doubt and pessimism. Thus, a salesman who is "knocking" does not get an enviable reputation. Furthermore, in taking the easier way, no salesman is apt to develop the tact and secure the adaptability needed so urgently in these days of keen competition. How can a salesman gain that close knowledge of his business in all its intricate and important details by attempting to sell goods unethically? The type of mind depending upon slurs to secure sales is not one to be admired. Nor does it denote an appreciation of America's attitude of "Live and let live." A "knocker" hurts himself in the eyes of those with whom he comes in contact; in addition, he forgets that salesmanship consists largely in knowledge of one's materials, and comprehension of the mental processes going on in the buyer's mind. Salesmanship, learned only after years of effort, is a profession, requiring the best a man can put forth. "Knocking," like grit in the bearings, is a serious handicap. Thus, such a one will not develop into a high grade salesman nor gain the esteem of the better class of trade.

A KNOCKER AT WORK—A KNOCKER AT PLAY

The question arises, whether such a business "knocker" is not seriously handicapped also in his social life. That some may be unethical in business but the best of fellows in private life, is, of course, true. Yet the majority of men are in disposition and character, when away from their work, much as they are when at work. This is only to be expected, since most of man's waking hours are spent in economic endeavor. That individual is indeed a curiosity who can change at will his method of thinking and acting. Most of us are greater victims of habit than that. In every religious, political, and social organization there are "knockers" —who criticise their fellow members and especially those who do not happen to move in the same social, political, or religious circle. "Once a 'knocker' always a 'knocker'" is an adage which shows that a "knocker" is a "knocker" wherever he goes.

Success—in business, in society, in politics, in life's varied relations—is desired by all. Yet no achievement is so great as that of the man who can reach his own highest and complete development. This may be secured only thru a proper blending of man's complex nature. Physical growth is a puzzle, increase in mental endowment is equally strange and interesting, while psychological knowledge is as desirable as is comprehension of the physical and mental. Can "knocking" in the face brick business, or elsewhere, assist one to reach that enviable position where all one's faculties are coordinated into a perfect whole?

A KNOCKER'S VALUE TO HIS EMPLOYER

Even tho it be self-evident that a man who is a "knocker" as a brick salesman, and as a member of society, is hurting himself, may he not be of as much value to his employer as a more ethical salesman? Other things being equal, there can be but one answer. And one does not have to seek long for the reason.

Among the qualities needed for success in salesmanship are tact in handling men, an enthusiasm that is infectious, an ability to profit from errors, and a knowledge that work—mental and physical—can solve most selling problems. A "knocker" invariably lacks these qualities—most, if not all, of them. Since such a one is laboring under difficulties in seeking business, his employer must also be the loser. In addition, the unfortunate salesman may be making enemies, when he should be making friends.

A COSTLY KNOCK

Once upon a time, a "cub" salesman secured an architect's specification on a church taking one hundred thousand brick. When the contract was let, a competitor, finding his efforts unavailing with the architect, saw the Building Committee and stated that, while his brick would not effloresce, the brick specified would. But the architect insisted he had selected the better brick, and suggested it could be settled easily by a competent chemist's test. This decided in favor of the specified material.

The above incident is mentioned, not to call attention to one unethical method, but to emphasize the effect on this salesman. Whenever he was in active competition with the "knocking" salesman, he did his utmost to see that his competitor lost out, even to the extent of tipping off other competitors. Due to this, the "knocker' actually lost sales for over five hundred thousand brick in the next two years. Likewise, his company was the loser.

What would you think if a physican from whom you sought medical advice spent a good part of the time casting slurs on other physicans?

When you bought that last suit of clothes, was any of your time taken up with abuse of other tailors?

Would you be apt to purchase any article from a "knocker"?

It is easy to see how, other things being equal, the "knocker" hurts not only himself but his company.

MAXIMS OF SUCCESSFUL SALESMEN

Among the maxims of successful salesmen are found such epigrams as "Don't dignify your competitor's product by 'knocking' it." Remember that under the most luscious cherry trees are found the biggest clubs."

Since every "knock" is a boost, for the other fellow, let your competitor be the offender.

It is interesting to note that no automobile gets such slurs as the Ford; yet the Ford people do not retaliate. What automobile company is doing as large a business?

One of the ablest brick salesmen in the country, who has personally closed contracts for many millions of face brick, tells of a big prospect which he and a competitor were working. Both took the buyer out, the competitor having first chance.

When it came our friend's turn, he spent a day showing all of his best buildings. Several times, upon being asked if certain unattractive jobs were his, he replied, "No." After exhibiting his "show-jobs" he stated that he would now visit his poor ones. Again he was asked, if certain poor looking buildings being passed were his. Again he replied that they were not. The prospect remarked, "Every building about which I have specially asked was said to be your material."

AFRAID TO TRUST A KNOCKER

Our salesman said, "Wait a minute and I'll give you a list of these buildings together with the names of the contractors. I do not ask you to take my word."

The next day the prospect telephoned, "The various contractors say those buildings used your competitor's brick. I never liked a 'knocker' but I wanted to be sure he was also a liar. Most 'knockers' are. You showed me nothing but your own brick. His price is lower, but I am afraid to trust him. The order is yours."

Every student of salesmanship would agree that the same general rules apply, no matter what the product. While there

are some exceptions, yet in the vast majority of cases the courteous, tactful salesman will win out against a "knocker." One needs but refer to personal experiences when buying to be convinced of this.

If any more evidence were needed to prove that "knocking" is disadvantageous, attention would only have to be called to the story, "The Customary Two Weeks" (by Freeman Tilden in the "Saturday Evening Post"), especially the installment in the issue of March 3, 1917. If the story has not been read, it should be by every one interested in selling. Whether the account is fiction or fact has not much bearing on our discussion. What is of interest is that the reader wants the "knocker" to lose and anxiously scans ahead to see if George Extell got the order. The reader's joy at learning he did succeed is but a universal echo.

Possibly there are some few orders which can be secured only by a face brick salesman who uses "knocking" methods. In such a case, it might be worth while for the salesman to ponder and ask himself if he should not lose a sale rather than sacrifice his reputation among the trade, and with his fellows.

DRIVING PROSPECTS FROM THE BRICK BUSINESS

Is not "knocking" apt to hurt our business in general? Many salesmen, and some of the largest firms, work on the basis that there will be just so many face brick sold anyway, no matter what their efforts. But is that so? Surely, the face brick business is much like other big businesses nearly all of which have their strong associations. These exist not only to protect the common interests of the industry but also to aid in its growth. Their purpose is not only defensive but also offensive. If the advantages of face brick were brought more intelligently to the attention of builders, can anyone doubt that there would be many more of the aristocrat of facing materials used? If several "knocking" brick salesmen call on a prospect who is pondering whether to use frame, stucco, or matt-surfaced tile, they are apt to drive him away from their product. This prospect may think that the good-looking and intelligent appearing salesmen are really honest, telling the truth about their competitors' product and, therefore, that all face brick are an inferior material. Most builders are busy men, especially at the time face brick are up for selection. Emphasis, at this time, could be placed upon the many advantages of the material; cooler in summer, warmer in winter, low insurance rates because it is fireproof, first costs slightly more than for inferior material but no further expense for up-keep or repairs, the many different colors and textures offer an opportunity for individuality, taste and refinement in their proper combination by the use of bond and mortar joint. What other material offers such value for the money? A six-pound finished product, dug from mother earth, fashioned by the clever hand of man, and refined in the purifying heat of fire at an average cost delivered to the building site of only a few cents each. Then lead the prospect to a face brick exhibit or make a trip inspecting all types of facing materials—and face brick must win.

Will a "knocker" see his opportunity? How can he, when he is looking for more chances to "knock"? The face brick industry today offers clean-cut, aggressive, and intelligent men a wonderful chance to use their talents and wits. "Knockers" are not wanted in our line, but we trust they will enter the employ of competing lines.

KNOCKING DEADLY TO ASSOCIATION WORK

As evidenced by the world of industrial activity, and especially in these momentous times, co-operation among kindred industries is the ideal. "Knocking," which causes hard feeling, suspicion and distrust, has no place in the face brick business of the twentieth century. No association can prosper unless its members have faith and confidence in each other. It is true that many factors are essential for a successful association. Yet, of unethical practices, "knocking" can do probably the greatest harm.

The American Face Brick Association and the Face-Brick Dealers' Association have done and are doing much that will prove of benefit to the industry. But their officers and members know they can accomplish much more. There are big opportunities ahead such as adopting standards in size, exchanging information regarding stocks on hand and sold, adopting uniform systems of cost-accounting, and employing aggressive publicity to educate contractors, builders, and architects to the real value of face brick.

It would also be worth while to consider whether a correspondence school for all face brick salesmen would not prove valuable. Then each member of every selling force would be a more powerful, dynamic agent in boosting the sale of face brick. The arguments offered in favor of other facing materials, potentially competing with ours, could be summarized and answered so that every salesman could meet them immediately. Many other things could be suggested. But none are apt to be successful, unless you have co-operation among the various local competing companies. If co-operation is not found there it cannot be found at the meetings of the association; no chain is stronger than its weakest link.

Since "knocking" is not of benefit to the salesman, in business, in his social life, or in his own personal development, or to his company, to the face brick business in general, or to its associations, there is no excuse for it being a part of any face brick salesman's "stock in trade." Competition will always be keen, but let it be clean.

Market for Fire Brick in Argentina

The total imports of fire brick into Argentina during the five-year period 1910-1914 amounted to 25,085,000 brick, of which Great Britain supplied 21,903,000; Germany, 1,430,000; Belgium, 735,000; the United States, 720,000, and France, 220,000, according to the report of Consul General W. Henry Robertson, Buenos Aires, published in the "Commerce Reports"—a government publication.

In 1915 the total imports amounted to 6,524,000 brick, and 1,763,000 during the first nine months of 1916. No details showing the origin for 1915 and 1916 are yet available.

The customs duty in Argentina on fire brick is five per cent. on $20 Argentina gold ($19.30 United States currency) per thousand.

As will be seen from the above figures, this market is almost entirely supplied by the English manufacturers. Several American firms here have reported that it is very difficult for American brick to compete successfully with the English brick on account of the price conditions. Prior to the war, when freights were on a normal basis, English fire brick was placed in Buenos Aires at $28.80 to $38.40 United States currency per thousand, while to-day the same brick is quoted at $62.40 per thousand c. i. f. Buenos Aires.

Another factor that works in favor of the English brick is that there is a great amount of English capital invested in local industrial plants and railroad companies, and a great number of engineers, architects, and builders of English origin established in this country are naturally more disposed toward working with the products of their own country, with which they have been accustomed.

For the past two years considerable depression has existed in Argentina in all industrial lines, while the railroads are spending little or no capital on new construction or improvements.

IMPORTS OF FIRE CLAY

The total amount of refractory or fire clay imported into Argentina during the five-year period 1910-1914 inclusive, amounted to 26,633 metric tons (1 metric ton=2,204.6 pounds), of which Great Britain supplied 14,934 tons, France 1,938 tons, Belgium 1,924 tons, Germany 1,445 tons, Austria-Hungary 206 tons, Italy 138 tons, and the United States 18 tons.

In 1915 the total imports amounted to 2,554 tons and 3,385 tons during the first nine months of 1916.

The customs duty on fire clay in Argentina is five per cent. on $12 Argentine gold ($11.58 United States currency) per metric ton.

In marketing fire clay here firms that have endeavored to secure American clay have found the same disadvantages to contend with as those affecting the fire brick trade. The fine clay coming from England is sold here at present at $20.88 United States currency per ton c. i. f. Buenos Aires, or approximately forty per cent. higher than for the same article sold prior to the war.

A list of the principal English manufacturers of fire brick represented in Argentina, firms likely to be interested in representing American manufacturers of fire brick, railroad companies, and foundries, may be obtained at the Bureau of Foreign and Domestic Commerce or its district or co-operative offices. Refer to file No. 87653.

FIRE BRICK AT ROSARIO

The demand for fire brick in the Rosario districts of Argentina, writes Consul William Dawson, Jr., in the same issue of "Commerce Reports," is not large, even under normal conditions, and is at present very small. The largest consumers of fire brick in the district are the sugar factories. Other consumers of refractory products are bakeries, lime kilns, brickmaking plants, glass factories, small foundries, and miscellaneous shops and establishments working metals. These concerns do not use sufficient quantities to make direct importation worth while.

A list of Rosario firms that deal in fire brick is transmitted. These houses import directly, but usually purchase fire brick thru export commission houses. Their trade in refractory products is, they claim, not important enough to make it worth while to deal directly with manufacturers. It must be remembered that this district is little developed from an industrial standpoint. Some consumers of this district may secure their supplies of fire brick from Buenos Aires importers, altho Rosario probably gets the bulk of the district's trade in these products.

FAILURE OF CANE CROP DECREASES DEMAND

At present the demand for fire brick from the Tucuman sugar factories has almost ceased as a result of the failure of the cane crop and poor prospects for this year. It is expected that only twelve of the thirty-two Tucuman factories will grind cane during the coming season. Brick plants and lime kilns are operating on a greatly reduced scale owing to lack of building, and the general business depression affects other consumers of refractory products.

Importers at Rosario state that they purchase English fire brick exclusively and some of them have never received offers of American brick.

Prices of English fire brick at Rosario are at present very unsettled owing to the freight situation, depending to a certain extent on when the stock was imported. Importers state that definite prices can not be given, but that the average price of "Etna" brick (9 by 4½ by 2½ inches or thereabouts) is at present about 180 paper pesos ($76.43) per thousand. One importer states that some four months ago he was quoted English fire brick of the same class at $43.31 per thousand c. i. f. Rosario, but does not believe that he could get it at that price at present.

Recent Freight Rate Decisions

The Interstate Commerce Commission has handed down a decision in case No. 8483 of the A. P. Green Fire Brick Co. against the Chicago & Alton et al. In their syllabus in this case the commissioners say:

"Present relation of rates on fire brick in carloads from Mexico and St. Louis, Mo., found to be unduly prejudicial to complainant and preferential of shippers at St. Louis; defendants required to revise rates to territory relatively near, giving recognition to substantial differences in distance."

The Commission has suspended until December 1 the operation of a certain provision appearing in Item 3230 of Agent A. C. Wonda's I. C. C. tariff No. 33, which canceled a commodity rate on vitrified clay sewer pipe, carloads, from Texarkana, Ark.-Tex., to Shreveport, La.

* * *

Two Well-Known Figures in New Company

Reports have been published in the past two issues of *Brick and Clay Record* regarding the incorporation of a new company which had been organized to take over the plant of the Ashtabula (Ohio) Shale Brick Co., but no definite information was available. It is now learned, however, that the R. L. Dollings Co., of Zanesville, Ohio, a concern capitalized at $3,000,000, has taken over the Ashtabula plant and will operate it under the name of the Lake Shore Shale Brick Co. Rufus C. Burton, of Zanesville, has been made president and W. H. Lucktenberg, former general manager of the Hocking Valley Brick Co., of Columbus, is vice-president and general manager of the new company. Mr. Lucktenberg has been engaged for several weeks in getting the plant ready for operation.

The Lake Shore Shale Brick Co. will bear no relation or connection with the old Ashtabula Shale Brick Co. The R. L. Dollings Co., which is financing the new enterprise, is said to be one of the biggest and most prosperous corporations in Ohio and prepared to put the Ashtabula plant upon a very successful basis. The new company has already located its main offices in the building of the Ashtabula County Building and Savings Co.

The plant, which is located at the western edge of the city along the New York Central Railway, is rapidly being placed in operating condition. According to Mr. Lucktenberg, it will be in operation within three weeks and when the improvements have been completed, will have a capacity of 15,000,000 paving brick a year.

Some idea as to the strength of the company which is financing the Lake Shore Shale Brick Co. may be obtained from the fact that it has one thousand representatives scattered thruout the United States. At a banquet recently tendered to the Dollings Co. by a Dayton manufacturing concern, Mr. Lucktenberg made an address in which he outlined the Ashtabula enterprise, and in which he spoke most encouragingly of the outlook for the success of the Lake Shore Shale Brick Co.

* * *

Columbus Association Discusses Credits

The Columbus (Ohio) Face Brick Association, which was organized more than six months ago, is holding weekly luncheon meetings at the Virginia Hotel. The subject of credits is now attracting the attention of the members of the association and later on it is planned to start a publicity campaign to boost face brick. Emmet Howard is president and R. M. Lucas, secretary.

The SALESMANAGER MAKES *an* UNUSUAL SALE

★ ★ ★

Selling a million brick and getting paid for them in advance is an unusual "stunt," to say the very least. In fact, under normal conditions, most manufacturers would say; "Impossible." But conditions are abnormal, particularly in the fire brick market and this makes new and strange deals possible. The following story is built around one such transaction. The details of this sale are exceedingly interesting and show some very clever thinking.

★ ★ ★



The Salesmanager Stretched His Legs Out—the Men in the Office Claimed that Once a Brick Fell on His Foot While He Was at One of the Company's Plants, and That It Took Five Minutes for Him to Find It Out, Because the Sensation Has So Far to Travel

"MR. BALDWIN," said the general manager, "you started one day last week to tell me of a prospective sale to the Caspar Steel Co. of an unusual character, and we were interrupted. If not going too personally into your department, may I ask what was the nature of it?"

The sales manager's face lighted up pleasantly as, wrapping one long leg around the other, he replied: "That's one thing you certainly have a knack at. You don't insist, as your forerunner did, on knowing exactly what one is doing, how he intends to do it, and why he doesn't do it a better way, leaving one only the routine stuff to handle on his own responsibility."

"Why shouldn't I give free rein to the heads of departments? When I was a boy at the brick plant, I often used to drop cars, just for the fun of riding them. You know there were no autos then, and a freight car afforded the only means of joy riding. I would first make sure the brake was good and then I would let the car sail. I hardly ever let a car go over the safety. Some other fellows wouldn't know until they wanted to stop that the car was running away, and then still others were so cautious they never let the car get up enough speed to round the first curve. I prefer to make sure a man has a good brake, and then I let him sail."

A MILLION BRICK FOR FUTURE DELIVERY

"I'm afraid your predecessor used the brake too much. Anyway, I'll try to keep from having a one-sided argument with a derailer. But to get to the Caspar deal. They wanted a million silica brick for delivery six to nine months from now, so I offered to book their order to be invoiced at current prices prevailing at the time of shipment. This did not satisfy them any more than their proposition satisfied me. They wanted to place the order at present prices, but did not want deliveries until they were needed. So I made this proposal to them: We would sell them a million brick, at present prices, and carry them in stock until they needed them, provided they would pay for them now, half in cash, the other half in notes of various denominations. This way, you see, they would have the brick for certain, paying a price probably much less than they would have to pay six months or more from now. In fact, six months from now they might not be able to secure them for love or money unless they were already optioned. This way, tho, we would be dealing with certainties on both sides instead of taking gamblers' chances. On our part, we were offering to sell brick of which we know the cost, quite different from selling brick for future delivery at a cost we now have no means of telling. On their part, they would not be buying brick with no knowledge as to what they were going to pay for them.

"What did they think of your plan?" asked the G. M. with considerable interest.

"They were tickled all over. Their purchasing agent and their treasurer had a seance over it, made out the necessary checks and notes, and I gave them a letter agreeing to carry the brick in stock for them and to load them out as desired, subject, of course, to car shortages and em-



Later, They Bent Their Heads Together Over Plans for a Little Home of Their Own, an Occupation at Which They Had Spent Many an Interesting Evening for Months Past, but Until Now Without Any Substantial Basis for the Realization of Their Hopes

bargoes. Don't you think this was a cracking good arrangement, both for them and for us."

CONSIDERING POSSIBLE ENTANGLEMENTS

"I certainly do," agreed the G. M. "It makes the transaction, as you say, sound business instead of speculation. Only one question occurs to me, and that, I must confess, is far-fetched. What if, for any unforeseen reason, we should not be able to carry out our part of the program?"

"What could happen? The brick are actually in stock, and they can't burn up."

"Well, just suppose, for the sake of argument, that we should go into the hands of receivers, or go bankrupt, or change hands in some manner which might affect their title to the stock we are to carry for them. I am afraid receivers, for example, would take possession of the entire stock leaving the Caspar people with an unsecured claim against the company, and a lawsuit. Their purchasing agent would be in a hole personally, they might have to buy the brick elsewhere at a considerably higher price, and the difference would not even be entertained by the receivers as an unsecured claim. Obviously this had not occurred to them, but had any such legal entanglements occurred to you?"

PROVIDING FOR RAPID DELIVERY

"In a way, they had, tho not in such concrete form. I thought you referred to physical difficulties," responded the sales manager, unwrapping his legs and entwining them in the opposite direction. "And because of the confidence they reposed in us, I used all the more care to protect their interests. So I went over the agreement with our treasurer, and he has set apart one of the notes for $2,000 received in the settlement, which makes two dollars per thousand, endorsing the note to the effect that it is to be due and payable only at the rate of two dollars per thousand for the brick shipped. Thus we have made it necessary for us to load them out in order to secure the remaining two dollars per thousand, which will make it worth our while to ship them as rapidly as they are needed. But if you are right about the status of the stock in the event of a receivership, it looks as tho we had better add another trench to our line of fortifications in their defense. What would you suggest?"

"I was just thinking of having seen in metal yards connected with furnaces, stacks of pig iron having signs annexed stating that it was the property of certain firms, and I understood that these stacks were collateral security for certain obligations of the furnace people. In one case, where the furnace company went into the hands of receivers, the owners of the stock employed watchmen to see that the receivers did not take possession of their property. I would suggest that you go with their purchasing agent to the silica plant where the brick are stored and formally give them possession of the necessary hacks, at the same time marking them so that they can be identified."

"All right. How would it do for our superintendent and one other of their men to act as witness of the transfer?"

CHANGING THE PROTECTION AGREEMENT

"Better yet," said the G. M. "But now about the $2,000 which has been put in hock by us as a guarantee that we will load the brick upon request. Is there any way in which we can turn this over to them and let them attend to their own protecting?"

The sales manager stretched his legs out—the men in the office claimed that once a brick fell on his foot while he was at one of the company's plants, and that it took five minutes for him to find it out, because the sensation had so far to travel—and rejoined, "I believe there is a way. We might cancel and return the note, regard the remainder as full payment for the brick instead of part payment, entering into an agreement with them to pay us two dollars per thousand for loading the brick when needed, subject to the car situation, and providing that if for any reason we should not be in a position to load the brick for them, they then would be at liberty to go on the premises and load them, retaining the two dollars per thousand for all the brick they are compelled to load. Anybody would jump at the chance to load the brick for them at that figure."

SALE GOES OVER BIG—IN TWO WAYS

The following week, chancing to meet in the hallway, the G. M. asked, "By the way, how did you come out in the Caspar deal?"

"We came out in good shape, fortunately. I found that their president was at one time a law student, and it is said of him that he reads all the fine print on a five-dollar-bill before accepting it, to make sure there is no clause in it prejudicial to an innocent holder. When he first learned of the purchase and payment for a million brick, he at once got to figuring out everything which could happen and a lot more that couldn't. But when he got all the facts before him, found that actual transfer had been made on our yards instead of being merely promised at a future date, and could find no way in which their title to the brick could be called in question, he was so tickled that he heartily congratulated the purchasing agent and raised his salary."

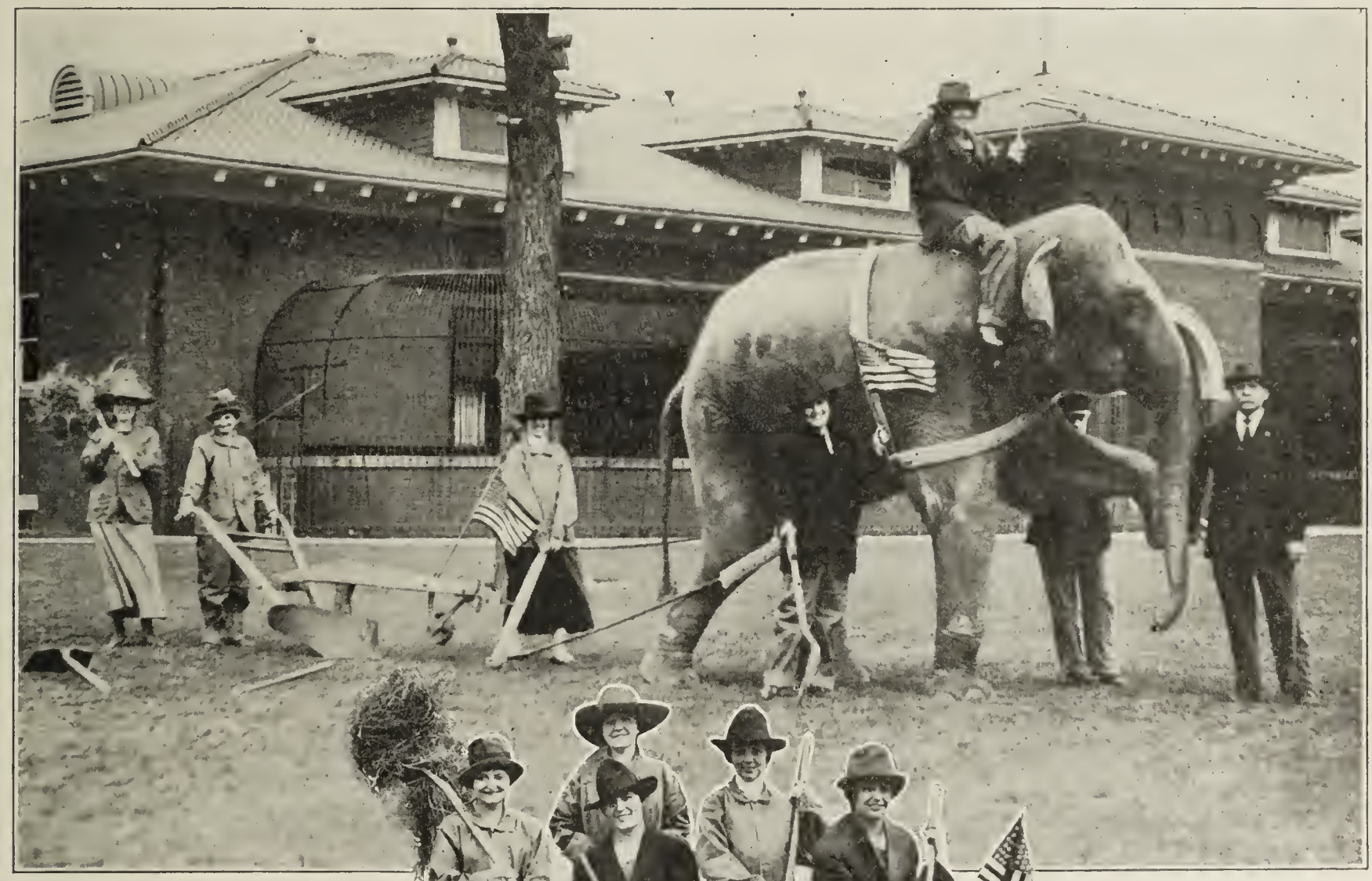
"He did, did he? Well, he isn't going to have anything on me. A man who sells brick a million at a time and gets paid in advance deserves a raise as much as does a man who buys them at that rate."

That evening the sales manager smuggled into his apartment a big bunch of white roses which his wife first

sighted as a center piece on the dining table. Later they bent their heads together over plans for a little home of their own, an occupation at which they had spent many an interesting evening for months past, but until now without any substantial basis for the realization of their hopes.

¶ *You have, no doubt, noticed, since the May 22 issue, that the General Manager, as well as Mr. Baldwin, have become new characters, that is, in physical appearance. Much as we regretted doing so, we were compelled to change artists in the midst of this series of articles by Mr. Greenwood, but believe that our readers will heartily agree with us that the change has been for the better. Therefore, we will just forget how the General Manager and his associates looked in the first few installments of this series and particularly remember the former as the virile, energetic and capable man pictured in the last and the current issues.*

EVERYBODY WORKS *but a* SLACKER



Even the young ladies in the office of the Barkwill-Farr Co., Cleveland, Ohio, are doing their "bit" for their country. The accompanying illustrations show them about to start a strenuous day's work on the one thousand acres surrounding the company's various factories, which have been given over to farming and gardening during the present national emergency. Local clayworkers admit that the Barkwill-Farr gardeners are "Buy Farr the Best."

ONE THOUSAND ACRES of land surrounding its various plants have been loaned by the Barkwill-Farr Co., of Cleveland, Ohio, to the Cleveland War Commission, for farming and gardening purposes during the present national emergency.

Thirty acres of this land at the Dennison factory were planted May 4 by employes of the Barkwill-Farr plants and the general offices, and has since been turned over to charitable institutions in Cleveland for further care.

On this day employes of the company turned out in a body and made the dirt fly in a manner which would have struck terror to the hearts of our enemies had they been able to witness it. Stenographers from the general office donned overalls and took their turn at the plow, the spade and the hoe. As no horses or tractors could be spared for the purpose, "Minnie," the Brookside zoo elephant, was drafted to pull the plow.

Sales Manager R. C. Mitchell, of the company, concedes that the war garden is "Buy Farr the Best" in the city and envious competitors have to admit that the Barkwill-Farr gardeners are by far the best and prettiest

The young ladies shown holding down the plow are (left to right) Misses Helen Hawley, Marie Carlin, Bessie Wheatley, Cora Bergen and Marie Addock.

RETAILING COAL *as* SHORTAGE PROTECTION

An Illinois Clay Products Company, Playing "Safety First," Builds Up Profitable Business in Side Line

COAL SHORTAGE—the very mention of it sends a creepy feeling down the spinal column of the clay products manufacturer. Mirrored in these two words, he sees again the railroads and their employes on the verge



The Three-Hundred-Ton Coal Shed Which the St. Anne Brick & Tile Co. Built When It Decided to Sell Coal as a Side Line. The Rapid Growth of the Business Soon Made This Storage Space Insufficient

of a battle that would have wrought untold damage to the country had it materialized. He is conscious that the price of the fuel upon which the operation of his factory depends has soared into the clouds, to levels which, in some cases, amount to more than double that which he had previously been paying and upon which the selling price of his product is based.

He sees in the term "coal shortage" a trying period thru which he has passed and is still passing, and a slowly dropping curve of fuel supply and costs from the time the railroad war passed beyond the realm of possibilities until the time the United States declared its intentions to champion the rights of humanity—to squelch the enemy which threatened to overthrow those principles of democracy which form the foundation of world happiness. Coincidentally with the declaration of war, another sharp rise occurred in the price of coal and the supply available suffered a decidedly untoward movement.

As the situation stands today, the "black diamonds" are the opposite of plentiful, and indications point to a still further thickening of the arteries from which flows the material upon which the clay plant depends for life. Recent reports indicate that some points are faring more fortunately than others and that supplies are gradually becoming larger, but the impossibility of making long time contracts for coal at favorable prices is still a problem with which the manufacturer has to contend.

ST. ANNE CO. SEVERELY HIT BY SHORTAGE

Being no exception to the rule, the St. Anne (Ill.) Brick & Tile Co. shared in the scare that was experienced by the users of coal at the time of the strained relations between the railroad companies and the trainmen and was compelled during that critical period to go into the open market and pay $3.25 and $3.50 a ton for a cheaper grade of coal than it had formerly been using at a cost about one hundred per cent. lower.

Fortunately the situation did not continue long enough to close the plant and when the storm clouds blew over and the outlook took on a more roseate hue, the St. Anne Brick & Tile Co. cast about for a means to prevent a recurrence of such a situation and to obviate the danger in the future of having to close its plant because of the price of fuel—or because that fuel was not obtainable at any price.

While investigating for some means of overcoming the danger, the officials of the company immediately recalled the insistent and continued demands of the townspeople, who also had great difficulty in getting coal at any price, that they, as a manufacturing concern, supply them from the piles which they purchased for the operation of their plant. Especially emphatic in their requests for such a service were many of the customers of the brick and tile company.

A CHANGE IN INCORPORATION PAPERS

The result of a long period of study was embodied in the change made in the company's charter on February 5,



A Few of the Kilns on the St. Anne Plant, Whose Continued Operation is Assured Because of the Novel Manner in Which the Company Has Protected Itself Against the Coal Shortage

1916, which permitted it to buy and sell coal, in addition to manufacture and sell brick, tile, and other clay products. And now, after the company has divided its inter-

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Upon This Brick Pavement, Which Has a Capacity of Four Hundred Tons, Is Stored Franklin County (Ill.) Coal, for Which the Demand from the Company's Customers is Greatest

★ ★ ★



ests between two businesses for a period somewhat over a year, it is trying to decide whether the so-called period of crisis was actually that or if it was the means of planting the seed of a new business, which, in the trying conditions prevailing since, has sprouted into a full grown and profitable undertaking.

The investment required to engage in the new business of handling coal and protecting itself against a future shortage was relatively small—almost negligible. When it decided to furnish its customers and the people of the town with coal, the company built a six-bin coal storage shed at one end of its plant off the spur track, which had a capacity of three hundred tons. As the business rapidly developed, this space was found insufficient to hold the amount required, so the company constructed two paved areas, or driveways, alongside the spur track of another railroad, upon which the coal was thrown and stored. One of these pavements is given over exclusively to the storage of No. 4 Indiana, fourth vein coal used by the company in firing its kilns, while the other platform is used for the most part for Franklin County (Ill.) coal, for which the demand from the coal customers is greatest.

CONSTRUCTION OF PAVEMENTS

The construction of these pavements is of interest and reflects the originality of the officials of the St. Anne company. Each is about thirty feet wide and one hundred and fifty feet long, and together they have a total storage capacity of about eight hundred tons. Brick turned on edge have been used to provide a smooth surface for the coal and a solid foundation for the big piles which must be carried. On the first of the two pavements to be constructed, a two-inch covering of concrete was laid upon the top of the closely laid brick, but it was discovered that the constant wear exerted by the horses and carts and auto trucks which had to mount the pavement rapidly destroyed the concrete covering. For this reason when the second pavement was laid, brick alone were used to provide the smooth surface.

To facilitate the delivery of the fuel to its customers the St. Anne company purchased a light auto truck, which has a capacity of one and one-half tons. This it also used in delivering its chief product, drain tile, to its local customers, and the company finds, that with good roads, it can safely pile two tons of tile on the truck.

Some idea of the almost miraculous growth of the new enterprise, reared in the cradle of necessity, can be obtained from the fact that during the first three months of 1917, three hundred and eight tons of coal were actually delivered while orders on the books at the end of that time for coal which had not been delivered amounted to more than two hundred tons. This statement, made alone and without a basis for comparison, is not so apparently important, but when it is considered that the St. Anne company does entirely a local coal business, in a town whose population numbers only 1,065, according to the census of 1910, it will readily be seen that the figures of sales just quoted possess some significance. And the coal business is growing daily.

NEW BUSINESS REMOVES SHORTAGE PERIL

However, the most important point in this story is the value of the correlation of businesses to the operation of the clay products plant. According to U. A. Cote, president of the company, the new enterprise has enabled them to almost forget about the problem of coal shortage as it relates to the operation of the plant. Gray hairs have long since stopped sprouting because of fear that a cessation of the fuel supply would find the company unable to continue operations. More consideration is now given their orders and the storage facilities erected to enable them to engage in the retail coal business have made it



★ ★ ★

The Coal Piled Upon This Brick Pavement, Which Has a Two-Inch Cement Covering, Is No. 4, Fourth Vein Indiana Coal, Used by the Company in Its Kilns

★ ★ ★

possible to keep a sufficient supply on hand to insure continued operations thru a period of shortage.

It has been found that to a certain extent, one industry helps the other. As an instance given by Mr. Cote, it has made it possible for the company to keep all of its employes busy all the time—and give some the opportunity to earn additional money by working overtime. When work becomes scarce on the tile plant, instead of laying the idle men off and creating dissatisfaction, the company puts them to work unloading the coal cars. When the plant is claiming the entire ten hours of the employes' day, the company provides those who wish to unload the coal cars after working hours with an opportunity to earn an amount in proportion to the amount of work accomplished. A contented unified force of workmen is the result.

The company has ingratiated itself with the people of its city for taking such a constructive step to protect them from a fuel shortage, and they, in turn, show their appreciation by lending the company support whenever possible.

Last of all, and most important, comes the removal of the danger of a closed plant because of a lack of fuel with which to burn the ware. This is by far the most important consideration to the St. Anne company, and is, in fact, the reason for the existence of the coal business. When it saw, in the future, a prolonged period of fuel shortage and grave possibilities of slackened operations, it took a step to avert those possibilities—and in doing so has built up a business that is not only a protection to its manufacturing activities but also a source of profit to its owners.

The STAR SPANGLED BANNER *of* BRICK

THESE ARE DAYS when the manufacturer of American flags is kept mighty busy supplying the tremendous demand for copies of "Old Glory." Everywhere you you go you see the red, white and blue, and clayworkers, not to be outdone by any other branch of industry, have decorated their offices with our national emblem, as well as their automobiles, and private homes. *Brick and Clay Record's* mail is filled with reports of flag raisings at many of the plants, the company, in most cases, supplying the pole and labor of erecting it, while the employes are buying the flags, which are unfurled to the breeze with a great patriotic demonstration.



A Burned Clay Reproduction of "Old Glory" Which Neither Time Nor the Elements Could Mar or Destroy—It is as Permanent as the Democracy for Which It Stands

Itching to do something out of the ordinary in the way of showing the company's colors, "Bill" Varney, manager of the Hydraulic-Press Brick Company's Chicago office, knit his brows a little while back when the question of a suitable patriotic decoration of the office came up, and after a little thought hit a plan that proved to be a brilliant idea. So many copies of "Old Glory" were being made of perishable bunting: why not construct one that neither time nor the elements could mar or destroy? Brick's the thing, and out of brick he proceeded to make an American flag, with the aid of some skilled masons.

The accompanying illustration shows the result, all of burned clay. The flag was laid up according to government specifications, that is, its width is in correct proportion with its height, and the field of blue, dotted with white stars, is also in correct proportion to the whole. The burned clay flag measures thirty-two inches high by forty-eight wide. The red stripes consist of red, vitrified builders, while the white stripes were laid up in matt glazed brick. Dark blue enamels furnish the blue portion of the flag, while white, five-point stars, cut from whole white enamel brick, represent the forty-eight states in the Union. And thereby hangs a tale.

When it came to making the stars for the flag, it never occurred to Varney that it would be possible to make these out of brick, in fact, he had given up an idea he had in this connection and had decided to cut them from oil cloth or something similar and paste them on the blue field. The masons working on the job, however, disagreed with Mr. Varney. They couldn't stand for faking the American flag in any detail, and if it was to be a burned clay flag, let it be all of that material. "Bill" said he could not stand the cost of cutting these stars from the whole brick; the masons walked out. Later, the disagreeing parties got together, the masons submitting a bid for a nominal figure, entirely separate from the original proposition, covering the setting of the stars, in order that the job might be done up right. "Bill" agreed to this plan and the job went ahead.

The masons found that it cost them considerably more than they had estimated to get those forty-eight stars cut from the brick and placed on the blue field, but the flag is now finished and can be seen by all who enter the Hydraulic-Press Brick Company's office in Chicago, as well as by many others who have no business that brings them into the display room, but who pass in the corridor.

The stars were cut from the whole brick with a chisel, while the necessary portions were removed by the same means from the blue enamels to receive the stars, which were then laid in with a blue cement mortar. The blue field was laid up in a box, separate from the rest of the flag, and then placed as a whole into the display.

CAN *the* FARM BARN BE MADE ABSOLUTELY FIREPROOF?



Section of Hollow Tile Barn Roof Erected at Iowa Agricultural Experiment Station During the Summer of 1915

Altho Its Feasibility is Somewhat Questionable Because of High Construction Cost, the Hollow Tile Roof Described Below Offers a Big Field for Development

By W. G. Kaiser

Presented Before the Annual Meeting of the American Society of Agricultural Engineers, Held in January, 1916.

AT THE PRESENT TIME there is a growing tendency toward the use of permanent and fireproof materials in the erection of farm buildings. The smaller and lesser structures were the first farm buildings to be built with lasting materials. In this group are silos, garages, milk houses, ice houses, poultry houses, hog houses, and the minor buildings of the farmstead. The more costly buildings and consequently those in which the fire risks are greater, such as the house and the barns, were usually the last to be constructed fireproof. This may be accounted for because of the fact that there is always some hesitation to accept a change from the long established wood type of construction and because one farmer wishes to exploit on a small scale what are to him such a comparatively new building material as hollow clay blocks.

Even with the present tendency towards the use of permanent materials there has been little done to secure absolute fireproofness. Usually only the walls and the ground floor are made fire resistant and little attempt is made to make the roof or the interior fireproof. Our permanent building materials are metal and masony and of the two, metal may be said to be the least permanent. Altho not in itself combustible, metal usually will not stand up in a very hot fire unless given some protective covering. On the other hand we have abundant examples to show how hollow building tile has come thru a very hot fire practically unimpaired.

A masonry roof is a simple matter in structures like garages, ice houses and poultry houses, and in many instances, such buildings have been built with a roof as permanent and fireproof as the wall itself. Reinforced concrete and burned clay hollow tile, or reinforced concrete are the materials commonly used for this purpose. However, whatever type of masonry construction is used the weight of the roof will be very great, and unless the span is small or a large number of supporting columns is used, heavy reinforced beams will be necessary to carry the load. With the lesser buildings, the span is not great and a fairly light reinforced concrete slab suffices.

In the case of a barn roof we have an entirely different proposition. Years of practice and custom have developed the average barn into a structure made of a width to accommodate two rows of stock with a common feed or a common litter alley, or a barn from thirty to forty feet wide. A loft for hay is also considered indispensable under most circumstances.

ESSENTIALS OF A BARN ROOF

With our modern methods of construction, making use of a gable or gambrel type of roof, much of the hay storage is secured in the space under the roof and above the wall plate. At this point we must not forget that the roof was given pitch primarily to shed water but it is reasonable to expect that it was not long before the space inclosed by the roof was utilized for storage.

With our equipment at present, the hay is usually taken in at the highest point at one or both ends of the barn and is carried on a track from one end of the barn to the other, consequently requiring that there be no obstruction in the mow to interfere with the free passage of the hay fork or sling. This location of the track is a most advantageous one in that the loft can be filled to a maximum. Since a certain amount of space must be left for the hay fork this space

will be reduced to a minimum when located in the apex.

To facilitate the handling of the hay it is desirable to have as few posts, braces, ties, etc., in the mow as possible. This



Showing the Complicated Forms for the Arch Ribs, Which, Altho Difficult to Erect, Can Be Used Many Times Over After Being Once Constructed

has been a great factor in developing the self-supporting type of roof exemplified in the wing joist and shawver types of framing.

At this point it may be well to summarize the essentials of a hay loft as herein discussed.

1. The loft should contain as few braces and supporting posts as possible to facilitate the handling of the hay.
2. It must have no trusses or cross braces to interfere with the free passage of the hay fork from one end of the barn to the other.
3. It should be roomy to secure storage.

Bearing in mind these requirements it is obvious why at the present time there is a tendency to build barns with a self-supporting gambrel roof. In some instances we have three pitched roofs and some of the very latest designs are built with a gothic arch roof, doing away with the post supports in the mow entirely and using the space under the roof to its fullest capacity. From the viewpoint of storing and handling hay this type of roof is ideal.

POSSIBILITY OF A MASONRY ROOF

With these essentials before us let us examine the possibility of a masonry roof for a barn. Materials available for a masonry roof are the various clay products, such as brick and tile, as well as stone and concrete. Each of these will withstand heavy compressive stresses, but are practically worthless in tension, with the exception of reinforced concrete where steel is used to take care of the tensile stresses.

The question as to what form or shape should be used in a masonry roof arises. We have seen how masonry is an excellent material in compression and not dependable in tension, and it is therefore to the advantage of this material that the form be such that the stresses will be largely compressive. In an arch these conditions obtain. And it has just been shown that a roof of this form would be desirable as a hay loft.

An arch of the form of an inverted catenary suggests itself. A catenary is a curve formed by a flexible, inextensible cord or chain, of uniform weight per unit of length, hung at two points and supporting its own weight alone. The equilibrium of such a curve is of course unstable, but is theoretically possible.

ANALYZING VARYING LOAD CONDITIONS.

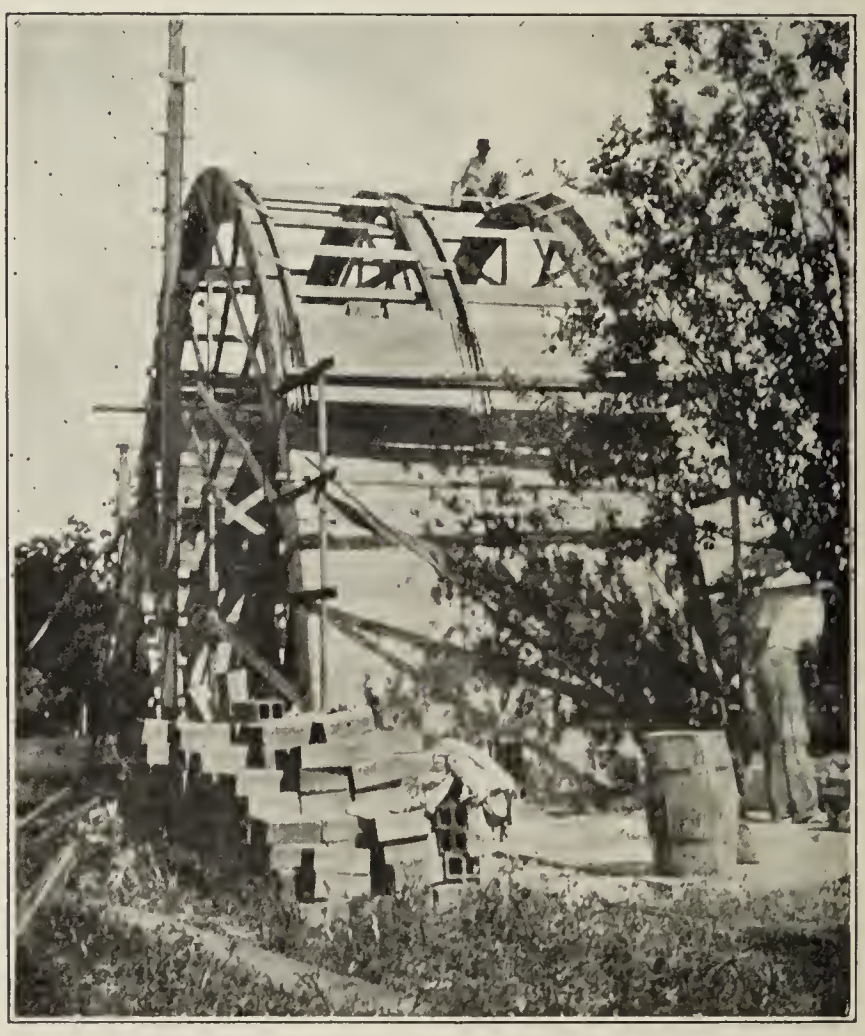
Before undertaking the design of such an arch in order to determine its stability, the loads must be analyzed. If the loads were all dead loads such as the weight of the roof itself, it would be an easy matter to construct an arch ring that would be in stable equilibrium, but this is not the case with a barn roof which is subject to wind loads, snow loads, loads due to taking in hay, etc., and bending and compressive stresses exist in the arch where before it had simple compression. Tensile stresses are not permissible in arches unless they are reinforced so that the arch ring acts as a beam carrying heavy bending moments involving tensile stresses in the steel.

Since the arch rib is a beam subject to either positive or negative bending moments, it is necessary that it should be reinforced on both sides. The shearing stresses due to beam action are relatively small, so that little is needed in the way of web reinforcement. The arch is subject to heavy compression, so that it is desirable that the inner and outer reinforcing be tied together somewhat as in a column.

An arch of this type was designed by W. W. Ashby as a thesis subject in 1913. The arch is of the form of an inverted catenary. Reinforced concrete ribs were used to carry the wind and live loads; hollow building tile were used as sheeting between the ribs. This arch was designed for a rectangular barn thirty feet wide and twenty feet from springing line to the crown. A one-third size model was constructed, six feet eight inches high and ten feet wide.

EXPERIMENTAL ROOF WITHSTANDS TESTS

Two weeks after completion this arch was loaded with



In Laying Up the Hollow Tile in the Arch, Great Care Was Taken to Have the Work Advance Equally from Both Sides, to Equalize the Load on the Braces

2,200 pounds of sand without signs of failure. A bag of sand weighing one hundred pounds dropped a distance of

thirty feet did nothing more than break out two of the hollow tile between the ribs.

In the summer of 1915 the Agricultural Engineering Section of the Iowa Agricultural Experiment Station began the construction of a section of arch suitable for the average barn. The equation of an inverted catenary was used in the preliminary design. The arch was made thirty-six feet wide and twenty-four feet seven inches high to the crown. Reinforced concrete ribs were designed to carry a wind load of thirty pounds per square foot according to the elastic arch theory. Hollow tile was used as sheeting between the concrete ribs, tile being chosen because it is a lighter material than concrete and less form work was necessary.

The forms for the arch ribs were quite complicated. Each one was built so that it could be easily taken down and reerected. Over $100 was expended in buying the lumber to make the forms for this arch. However, once constructed, they can be used many times.

The forms had to be well braced in order to withstand the heavy loads without deflection. Up until the time that the arch is closed the entire weight of the arch must be sustained by the form work.

Each rib was reinforced with eight one-half-inch square twisted bars, four on the top and four on the bottom. No. 6 wire was carried across the arch in every mortar joint between the tile.

The tile were laid up in sections trying to keep both sides of the arch about the same height in order that the loading on the forms would be better distributed. The concrete in the ribs was poured after the sections of blocks were laid. The concrete was allowed to run back into the air space in the tile, thus securely bonding the rib to the hollow tile sheeting. After the arch was completed it was washed with diluted HCl to remove the mortar stains.

PROBLEM OF WATERPROOFING ROOF ARISES

The completed arch was not water tight and with the first shower water poured thru the mortar joints between the clay blocks. This brought up the problem of securing some waterproof coating. Three methods of waterproofing are now being tested out, namely:

1. An application of a cement wash.
2. A coating of bituminous roof paint.
3. A commercial integral waterproofing compound.

Up to the present time each of these have been quite satisfactory. Dampness, however, can sometimes be detected on the under side after a heavy rain.

As yet no tests have been made on this arch except a weather test. At the present time there are no signs of cracks, defects or failure of any sort.

Some facts and figures about this arch are:

Span of arch, 36 feet.

Height to crown, 24 feet 7 inches.

Length of section, 12 feet 10 inches.

Distance between ribs, 6 feet.

Perimeter of arch, 65 feet.

Depth of rib, 8 inches at crown increasing to 14 inches at springing line.

Width of rib, 10 inches thruout.

1,400 pounds steel reinforcing.

900 hollow tile, 5x8x12.

More than 200 cubic feet of concrete.

In using this arch as a barn roof it is planned to have the arch begin at the loft floor line. This type of construction presupposes masonry walls and a reinforced masonry loft floor. Another plan is to have the arch extend to the foundation as the bottom eight feet of such an arch would be quite perpendicular and could be used as the barn wall.

CONSERVATISM GAINS UPPER HAND *in* N. Y.

WATCHFUL WAITING appears to be the program for builders, investors, contractors, and all others in any way concerned in property affairs in New York City and the entire metropolitan territory. The "slowing down" of the realty market has been in process now for some time and "marking time" is a whole lot more popular than "forward march." At least that is the way it appears to the man on the street. Marking time in the building game does not necessarily mean stopping short. Business is proceeding of course and over in New Jersey reports are that in sections it is particularly brisk, but taken as a whole the tendency assuredly is to watchfully wait for something good to happen before "all hands cut loose and go to it strong."

Fundamentally, the situation is sound and money is plentiful, but it is a pretty hard thing these days to make those who have it "loosen up" for speculative building and even for the average necessary job one finds the money lender more conservative than ever. In New York everybody is agreed that about the best thing to buy just now is Liberty Bonds and they are going like the proverbial hot cakes. The bond issue and conscription are two mighty big factors just now in the life of the greatest city in the world.

Conscription is worrying employers of labor and New York possibly will be as hard hit as any city in the country. There are many men above 21 and under 31 years engaged in the building and allied trades. Already countless numbers are in the National Guard and the draft will take still more. Of course, this can be overcome but, nevertheless, it adds a little to the difficulty of an already difficult situation. On the other hand, the very fact that business has been slowing down is helpful to the cause of the nation insofar as securing recruits is concerned, many young men having joined the colors who were identified with building and building material production businesses.

A SUMMARY OF RENTAL CONDITIONS

The real estate rental market has been hit hard by the war.

One able authority summarizes conditions in this manner:

1. Buildings cannot be erected now except at costs conservatively estimated at from 40 to 75 per cent. greater than in normal times.
2. Tenants could not possibly pay rentals that owners of buildings would have to exact for space for structures erected at present costs.
3. Institutional and private lenders would not care to lend on mortgages based on present costs of construction, not knowing the future of the present unprecedented situation.
4. Building is almost wholly confined to individuals or corporations who have sufficient money in hand as not to occasion their entering the market for loans. Thus new construction is restricted to the minimum.

The movement of government troops as well as foodstuffs and other war supplies is giving the railroads the hardest kind of a time to keep things going with any semblance of smoothness. Then again, there is the mobi-

(*Continued on Page* 1153.)

GOING *to* MARKET *on the* ROAD *of* LEAST REPAIR

A Reproduction of the Text Matter of a Beautiful Booklet Issued by the National Paving Brick Manufacturers' Association to Reach the American Farmer

PROSPERITY depends on something beside large crops. When soil, sunshine, rain, skill and hard work have done all they can do, there remains the important question of turning crops into money.

Injustice to the farming industry is the story of forty-cent potatoes that retail in town for a dollar or more: of fourteen-cent eggs which cost the consumer forty cents; of grain sold at a bottom market; of fruit that rots on the trees or ground because its harvesting offers no profit.

The foremost remedy for these conditions is the dependable highway—not merely the passable road—although that would often be a boon—but a real rural pavement smooth as a floor, certain as to footing and giving uniform service fifty-two weeks in the year.

Such a road permits the marketing of crops at the time and place that afford the largest return. The farmer is less at the mercy of a particular commission merchant or a particular railroad. The maximum load may be increased as much as six times. Hauling radius may be ten times greater than before, permitting the reaching of the terminal market without reliance upon rail.

The exorbitant prices paid by city people to city dealers for farm produce is an injury to the farmer's business, as the price paid is invariably out of proportion compared with what the farmer receives.

A customer who pays too much is not a satisfied customer. He cannot afford to buy as much as he would, nor to cultivate a taste for the fine quality of produce that the farmer takes pride in raising.

Mud is the symbol of friction in the economic machine. The loss it occasions is nobody's gain.

AN ENDURING PAVEMENT

Paved roads stand for co-operation between country and city, between grower and eater. Each should help pay for them; they will prove a continual source of wealth and satisfaction to all.

The brick road is the kind of road we have been talking about..

It has the rarely combined qualities of smoothness with security of foothold; it offers the minimum resistance to the progress of the wheel; while the danger of slipping or skidding can practically be disregarded.

Some pavements are dangerous when merely wet. The traction of a brick pavement is unaffected by dampness. For grades, hillside brick makes secure footing, saves horses' legs and increases possible loads.

The brick road is clean if it has half a chance. It originates no dust. No offal clings to it. Hence no contamination—no odor. Rain washes it in the wet season and in dry seasons the refuse is blown to the road side.

A brick road, once laid, is there. Numerous instances can be cited where such roads have endured for decades, practically without repairs. At twenty years they are just entering the prime of life. They should be good at fifty. "No properly constructed brick road has ever yet worn out," says the United States Office of Public Roads and Rural Engineering in an official bulletin.

BRICK ROAD LEAST EXPENSIVE

For the reason that it lasts and gives uninterrupted service, the brick road is decidedly the least expensive. Its first cost is moderate. No patents nor monopoly of



A Two-Horse Team Hauled These Five Wagons of Corn to Market on the Brick Road North of Newman, Illinois, When an Empty Wagon Could Not Be Pulled on a Dirt Road.

raw supplies have to be reckoned with. Scores of brick makers and hundreds of capable contractors compete to keep the cost where it should be.

But a greater gain is represented in the virtual freedom from need of repairs. The bills for repairing most improved roads would build in a very few years a brick road. Some road improvements are really a burden. To increase their mileage is to pile up the annual interest that must be paid in the form of maintenance, repairs and reconstruction. The brick road is a thing of permanent value. Its completion means that something is *done*.

Dollars are important for what they will buy. What you earn and what you save you apply to the satisfaction of living.

So the pavement that earns you money and affords you comfort and pleasure gives you a two-fold satisfaction.

You like to skim along a smooth surface on wheels. Everywhere brick roads have penetrated the farmers have a possession they will never part with.

Bad roads detract from the advantages of centralized schools. Attendance becomes ofttimes irregular and always costly.



A Page of Pictures of Brick Paved Highways Appearing in the Booklet, "Going to Market on the Road of Least Repair"

Mail is delivered earlier and more certainly on the brick road. Scores of useful commodities are brought to your very door by auto truck.

THE SOLUTION OF ROAD PROBLEM

For pedestrians and school children the brick road furnishes a clean footway equal to the best city sidewalk.

Auto bus lines are an almost universal feature of well paved farming localities. The family errands and visits can be accomplished without taking the plow horse from his duties to haul a carriage. Town is hours nearer.

To live on a brick road is to feel the part of the modern world, to enjoy confidence, to think and act with courage and efficiency. To live in this century, you must have a Twentieth Century Highway.

The road problem in this country is revealing a commercial economy for the welfare of all never heretofore appreciated. The railroad of forty years ago which was built in sections of wide gauge and narrow gauge, ferries and detours, that made necessary loading, reloading and forwarding a large part of the transportation feature is no longer tolerated in steam transportation. The intermittent condition of our highways, good, bad, indifferent and impassable, must be abandoned and a real road sub-

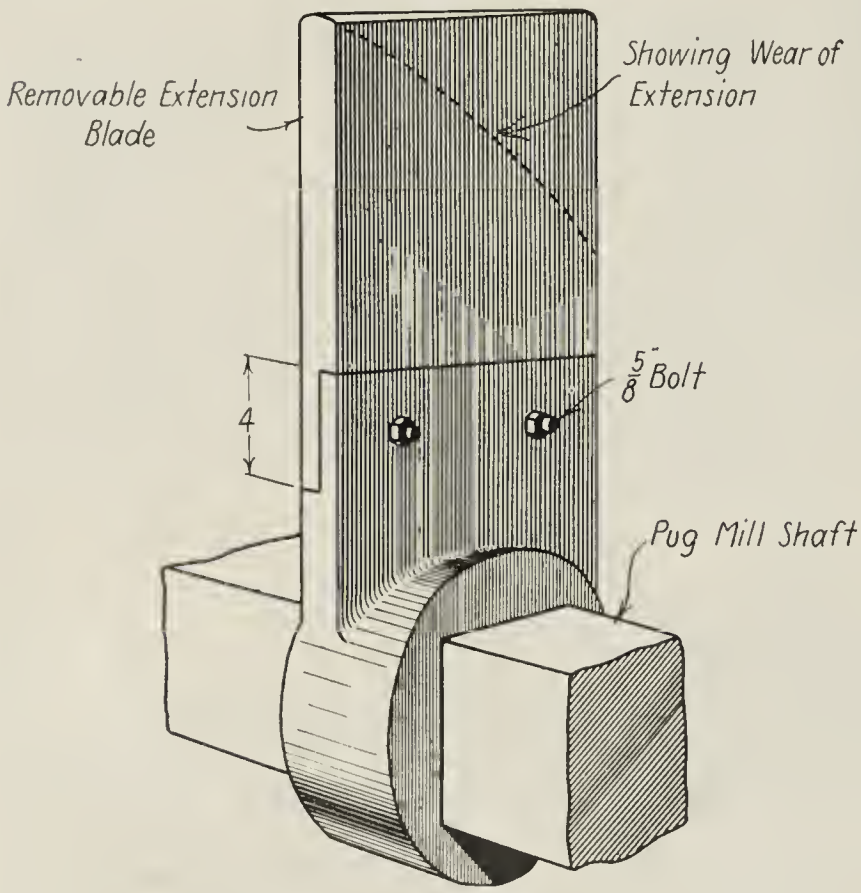
(*Continued on Page* 1169.)

The SUPERINTENDENT

Helpful Hints for Practical Men
Whose Problem is Maximum
Production With Minimum Cost

Reducing Cost of Pug-Mill Blades

We are indebted to Tom Hall, superintendent of the Moscow (Idaho) Fire Brick & Clay Products Co., for an idea which may be the means of saving many clay products manufacturers a considerable percentage of the money which they have heretofore been spending for pug-mill blades, or knives.



Only the Extension Arm on This Pug Mill Blade Must Be Discarded When Worn Out

As is clearly shown in the accompanying illustration, the pug-mill knife designed by Mr. Hall is cast in two pieces, one of which comprises the hub that fits over the pug-mill shaft and a portion of the blade, and the other consisting of an extension which may be very readily attached to the bottom portion. With this arrangement it is unnecessary to discard the lower half of the knife when that portion which exerts the pressure upon the clay is worn out.

When it has been worn down to the extent that it must be discarded, the extension may readily be removed by removing the bolts, and another arm attached to that portion of the blade cast with the hub which fits over the pug-mill shaft. A very great saving in the number of castings used, and the expense attached to the replacement of worn-out castings is obviated by the use of this arrangement, and also an appreciable saving is effected in the amount of labor required to keep the pug-mill knives in good condition.

Record and Study Steam Shovel Delays

When a steam shovel has begun work on a cut it will usually not be actually digging dirt more than half the time, according to a writer in "Enginering and Contracting." The other half is spent in shifting forward, in waiting for cars, taking on coal and water, delays incident to field repairs, etc.

Shifting a large shovel forward about six feet each move, where the shovel is on rails, ordinarily takes about four to five minutes. A slow gang may consume fifteen minutes in accomplishing this work, whereas a very rapid gang can make such a shift in one and one-half minutes, or slightly less. If the cut is shallow, necessitating frequent shifts, it will pay well to "keep tags on" the time spent in shifting with a view to cutting it down to two minutes for the average shift. The pit crew should be trained to work at sprinting speed when moving ties and rails forward, for the total daily output depends materially upon the rapidity with which forward shifts are made. It hurts no man to speed up for a few minutes at intervals. Yet many a pit gang works as deliberately while shifting as if that work were a steady all-day job.

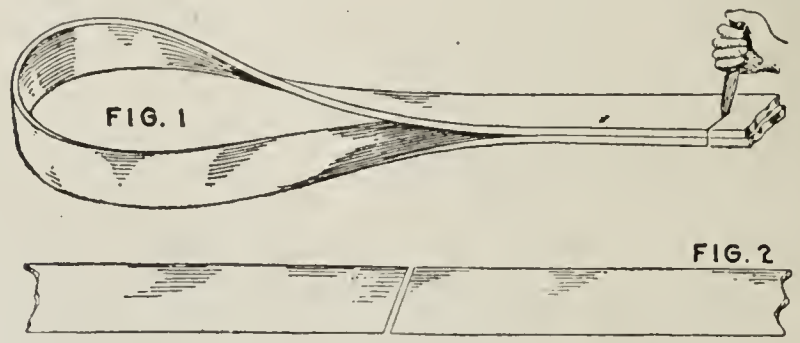
When one stops to consider that the daily cost of a large shovel, dinkeys, cars and men is seldom less than $50 and more often is nearer $100, it becomes evident that it pays to employ a man to time all the operations and delays, noting the cause and duration of all time not actually spent digging dirt. Study of the daily reports made by such a timekeeper will indicate steps to be taken to reduce lost time.

On some classes of work the time lost in moving several hundred feet to start a new cut is a source of unduly great expense.

* * *

An Interesting Belt-Cutting Kink

Invariably descriptions of novel methods of cutting belts and items uncovering interesting belt kinks very emphatically caution the readers to "cut the belt square" before lacing, writes W. F. Schaphorst in a recent issue of "Power," but here is a good one that insures straight running even tho the cut is not made square. In fact,



Showing a Method of Cutting Belts Which Insures a Perfect Fit, Even Tho the Belt Is Not Cut Square

a straight edge or steel square is not even needed for jointing narrow belts.

The sketches show plainly (Fig. 1) how the belt is laid

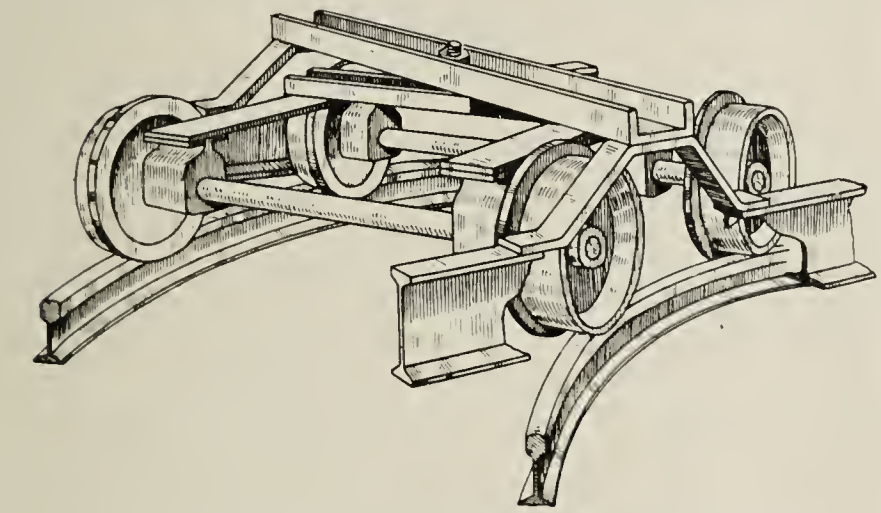
for cutting and (Fig. 2) how the ends match. Match the two ends, one on top of the other as shown, with both smooth sides either up or down and the sides perfectly even. Then cut both together along a straight line. If cut square, or at forty-five degrees, or any other angle, the joint will be a perfect fit.

In the case of double or triple belts, where both sides are smooth, place the "outside" of the belt either up or down. The belt must be twisted so that the same side is on top at the point of cutting. The reason for this is very evident.

A Transfer Truck That Thwarted Trouble

Insufficient yard space is a problem with which many clay products manufacturers must contend. In the case of a large Tennessee clay plant the problem became so serious when an additional kiln was added to the battery that it threatened to make it necessary to dispense with the transfer equipment which was used before the kiln was erected.

In conveying the dryer cars to and from the kilns, an electrically operated transfer was used which carried two dryer cars, and which was about fifteen feet in length. Of course, the ordinary transfer car of this length requires a very large curve to negotiate, and when

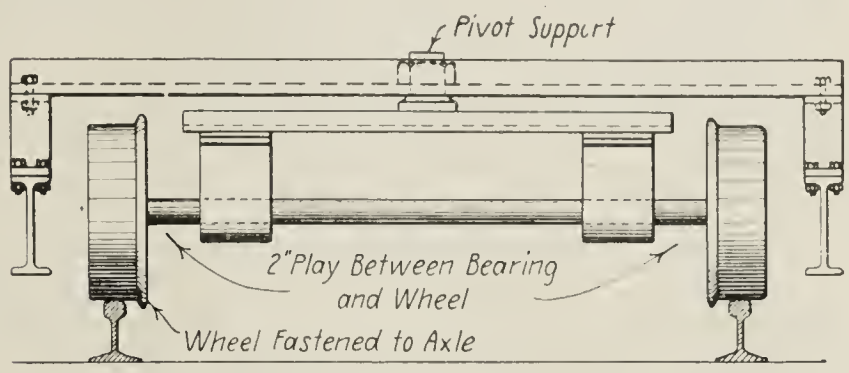


In Rounding a Curve, the Wheels of This Truck Fall Out of Alignment and Reduce the Amount of Swing Which the Truck Would Otherwise Require

it became necessary, after building the kiln, to install several short, abrupt curves in the transfer track, the lengthy transfer car was unable to make the turns. This condition made necessary a change in the construction of the trucks of the transfer car which would permit a freer action and enable the car to get to all points on the yard.

After extensive study, the car truck shown in the accompanying drawings was perfected and installed upon the transfer with very satisfactory results, and obviated the necessity for changing the layout of the transfer track, or substituting a different system for carrying the dryer cars to the kilns.

The principle upon which it is constructed is to aid the restricted swing of the body of the truck by fastening the wheels to the truck axles rigidly, so that the entire axle revolves when the car is in operation. Two inches of free play is allowed on each side of the bearings thru which the axle passes, so that, when the car strikes a curve, the wheels fall out of alignment, the front and rear wheels shifting over in the direction of the curve and making the swing of the body almost unnecessary unless the curve is exceptionally sharp. It is readily seen that the wheels remain pointed in the direction of the straightway preceding the curve, and consequently, skid around rather than follow the tracks. Another feature that should be studied in connection with this



The Two-Inch Play on Each Side of the Bearing, Which Aids the Restricted Swing of the Truck, Is the Feature Which Solved a Difficult Plant Problem

truck is that the two front axles do not have separate action, but are bound together in such a manner that their action is simultaneous.

Safety in the Use of Oil Burners

Serious accidents are of frequent occurrence from the practice of improper methods of lighting and handling oil fires, writes A. C. McHugh, in a recent issue of "Power," and it is the writer's purpose to call attention to a few general rules which, if followed, will greatly lessen the danger of injury to those using oil fuel in furnaces.

Oil burners may be broadly divided into two classes—those that use steam for atomization of the oil and those that do not. As the former are more generally used, the present remarks will be confined to steam atomizing burners. These are of two types—the inside-mixture type, in which the oil and steam come together inside the burner and are introduced to the furnace thru one slot; and the outside mixture type, by which the oil and steam are introduced separately. There is, however, very little difference in the method that should be employed in lighting or handling either type.

In starting a new fire the steam should be turned on and the bypass opened in order that the oil and steam passage may be cleaned out and warmed up. The bypass should then be closed and the steam shut off. Then the damper must be opened. This is one of the most important things to impress upon one's mind. Do not try to start a fire with the damper closed. Next light a torch or bunch of oily waste and place about ten to twelve inches in front of the burner, turn on a small amount of steam just enough to carry the oil from the burner tip to the torch and crack the oil control valve a little. As it generally takes some little time for the oil to fill the burner passage, do not turn on more fuel but wait until the passage is filled, when the fire will light easily.

WATCH FIRES CLOSELY TO PREVENT EXPLOSIONS

Until the furnace is thoroly warmed up, the fire should be closely watched, as it is easily put out, especially if either the steam or oil contains much water. Should the fire go out and the oil still be left to flow, the heat of the furnace will generate volatile gases that will appear at the stack in the form of grayish-white smoke. Should a torch then be applied, a violent explosion would occur. Cases are on record where these gases have been ignited thru the breechings of other boilers. The moment the fire is out, the oil should be shut off and the door opened. After a few minutes the gases will have passed off and the fire may be rekindled. When the furnace is hot, there

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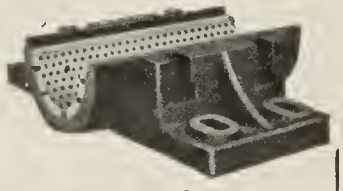
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is not so much danger, as the incandescent furnace will immediately relight the oil if its flow should be interrupted for a moment; but even then no chances should be taken, for it is in this way most men are burned. The fire goes out; the attendant opens the door and turns on more oil, expecting it to light immediately, which it generally does, to his sorrow. It is always cheaper to rekindle than to take a chance. In regulating a fire the attendant should hold the door open just enough to enable him to watch the flame and be in a position to duck his head in case of a flare back. To increase the fire the oil valve should be operated first, then the steam turned on until the flame is clear. If not enough steam is used, the flame will appear red and smoky; too much steam will cause the fire to look ragged and will have a tendency to extinguish it. In reducing the flame the steam is throttled down first, then the oil is reduced.

Once the fires have been set, they may be regulated over quite a range by increasing or decreasing the pressure applied to the oil supply without opening the fire-door or changing the steam supply. This can be done by manipulating the pump throttle or a bypass valve between the suction and discharge lines.

When extinguishing a fire, the flame should be cut down as low as possible; then by opening the bypass immediately after shutting the oil valve, the oil passage will be blown out without danger, as the flame will not be extinguished until the passage is clear.

REDUCE AIR SUPPLY TO LOWER COSTS

Another point of great importance is that of air supply, or draft regulation. The importance of smokeless combustion is impressed upon the minds of nearly everyone. In fact, a smokeless stack is demanded of all oil-burning plants, but the fact is that a large percentage of these same smokeless plants are operating in utter disregard of fuel economy. One of the chief virtues of oil over coal as a fuel is the fact that on account of its volatile nature, it is more readily mixed with air, thus permitting the air supply to be reduced to a minimum. In properly designed furnaces but little more than the theoretical amount need be used; but in a great many plants little or no attention is paid to this, and as a result, the average oil furnace is more wasteful than the average coal furnace, because of the small resistance offered to the passage of air, there being no fuel bed to check its flow. Thus without close regulation large quantities of air are admitted to be heated and to flow blissfully from our pride, the smokeless stack. The proper method is to reduce the air supply until a faint haze is observed at the stack. This may at first seem difficult, especially with a large string of fires, but after a little practice an intelligent fireman will experience little difficulty even with a widely variable load.

In some plants the stack or breeching dampers are used entirely for air regulation, others use only the draft or ashpit doors, and still others, a combination of the two. From a safety point of view the writer prefers either of the two last-named, altho it must be admitted that the pressure drop in the furnace due to the resistance at the entrance will stimulate air leaks thru the settings to a greater extent than would be the case should the breeching damper be used. But on the other hand, the draft doors are generally more accessible and more likely to be used, and there is not so much likelihood of the dampers being entirely closed and the air supply shut off, for in this lies one of the greatest dangers. Should the breeching damper be closed while the fire is still on, the chances are that an explosion will occur, as the oil in



the hot furnace will generate a large volume of volatile gas, which only awaits the admission of air to be ignited with disastrous results. To prevent the possibility of an occurrence of this sort, a safety stop should be placed so as to prevent the complete closing of the damper without removing the stop. A little common sense applied at the right time will prevent nearly all oil-furnace explosions.

* * *

CONSERVATISM GAINS UPPER HAND *in* NEW YORK

(*Continued from Page* 1147.)

lization of able-bodied men to work on farms and some attractive wage and board offers have come to laboring men from the farmers of the great Middle West. It is this that is certainly making wise men wiser and giving nearly everybody the word "caution" for a middle name.

Frank A. Vanderlip, president of the National City Bank and member of the labor committee of the Council of National Defense's advisory commission, sounded a note of optimism the other day by declaring that different but better business would be enjoyed in America after the war. Mr. Vanderlip said the war would call for readjustments, but not for diminution in the volume of business; that times would be better than ever before, and that the people should be getting ready for top-speed production that would utilize every energy.

HUDSON COMMONS DROP TO $9.50

Eastern building material distributors are doing all possible to enable builders to proceed with projected operations, and Hudson common brick was recently reduced to $9.50—a drop of half a dollar. Association meetings held recently to determine ways and means for taking care of those interests sufficiently strong to proceed with construction work developed a healthy disposition to meet prospective builders more than half way.

Lumber interests are beginning to feel the pinch of the tight conditions of the steel market. The total cut of lumber in this country based upon reservations made at the present time will, it is expected, exceed forty-two billion feet as against a total of forty billion feet cut last year. The drain upon mill capacities is shown in the continued change upward of the price list. Cement shipments in zones 1 and 2 in the first quarter of this year were 250,000 barrels in excess of shipments made in the first quarter of last year. April shipments broke all records of the last ten years for heaviness. The increase in the production of Portland cement in the first four months of 1917 was thirty-five per cent. over that of the same period a year ago, and despite this fact, stocks are approximately ten per cent. less this year than they were at the end of the corresponding four months in 1916.

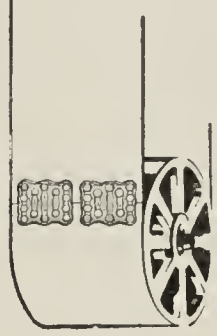
New York plan filings took a little spurt upward toward the end of May, the filings for the week ending May 21 being valued at $5,982,546 for new buildings and $377,705 for alterations. This compares with $10,199,880 for new buildings and $1,294,335 for alterations during the same week of 1916. From January to date of this year the total for new buildings is $44,291,261, and for alterations $8,235,092. For the same period last year filings for new buildings totaled $68,902,700 and for alterations $11,437,174.

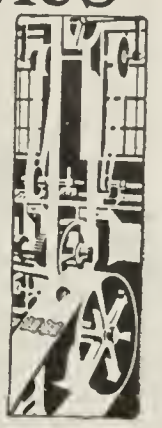
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By C. F. Hirshfeld, M. M. E., and T. C. Ulbricht, M. E., M. M. E.

This book contains the essential theory of the subject, and is written in an understandable manner.

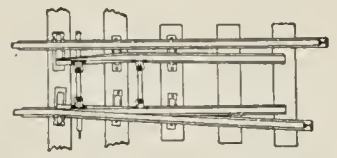
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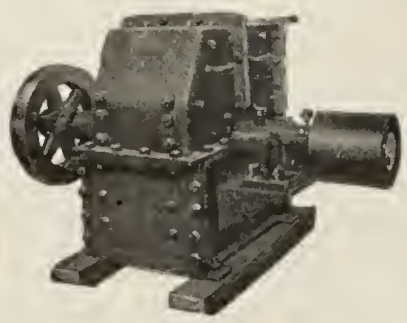
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Consuming only 10 h. p. to 15 h. p., the No. 1 machine will reduce 4 tons to 7 tons of rock, or 8 tons to 13 tons of clay per hour from 3 in. to dust.
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QUESTIONS

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Address all communications intended for this department to "Editor, Questions and Answers," care of "Brick and Clay Record," Chicago.

Advisability of Using Exhaust Steam in Dryer

823. *Washington—We now have a small dry kiln, three tunnels seventy feet long, and we dry by radiated heat; that is, we have two eight-inch pipes under each track and a furnace at the hot end. We use cord wood for fuel. We used this method when we had electricity for power, but now we have changed over to steam power. Would it be advisable to pipe it and use exhaust steam and live steam for heating it? Which would give the most and best heat with the least wood consumption to your best judgment? We have a sixty h. p. boiler and engine.*

Could you estimate what ought to be the drying capacity of a kiln of this size; brick hacked eight high on cars? Also, what size should the ventilators be? We fear we have not enough ventilation, as the brick on the end cars often become soft with steam. Our ventilators are all at the end of the kiln.

We cannot see, from this distance, any particular objection to your using the exhaust steam, piping it to the dryer and running it under the tunnels as you state. The whole proposition, of course, would require some thought and study, even if we were on the ground, instead of here in an office in Chicago with only a limited fund of information. If the dryer is not too far from the boiler and if there is room in or on the tunnel floors, it might be advisable to put in an exhaust steam equipment without disturbing the present radiated heat system. The two systems could be used to supplement each other, each to be an auxiliary to the other, the steam system to be used in the day time, utilizing the exhaust steam from the engine, and the radiated heat system at night.

Or it may be found more economical to use live steam at night. This could easily be determined by a record of costs of night firing on each system over a term, say, one week each.

If you are using standard dryer cars and the brick were hacked eight high, each car should hold between 450 and 500 brick. Figuring ten cars to the tunnel, according to the size of the dryer which you give, the dry house should hold thirty cars at one time, or 15,000 brick. Dividing this figure by the number of days required to dry your ware will give you the daily capacity of the dry house. Of course, if your dryer cars are slightly smaller than the standard, this would decrease the capacity from the figure given above.

Replying to that part of your inquiry in which you state that you feel you do not have enough ventilation in the dryer, as the brick on the end cars often come out wet, wish to refer you to an article in the May 22 issue of *Brick and*



and ANSWERS

Best Authorities in Every Clay-working Branch are Called into Consultation — Their Advice is Free to You, Thru These Columns

Should a reply be desired by letter, send a stamped and addressed envelope with your question, and it will be answered promptly.

Clay Record entitled, "Notes on Waste Heat Tunnel Dryer Operation," by Otis L. Helfrich, which gives some very good data with regard to the proper ventilation of a dryer.

* * *

Has Trouble with Wires in Cutting Face Brick

822. *Massachusetts—We are having some trouble in getting good corners on our wire-cut face brick; also, the wire which cuts the face has a tendency to rise and cuts the face of the brick round. By bolting a little piece of iron down on the center of the face wire I have been able to keep the wire down, but in many of the brick this shows a slight line on face of brick. I have never had any difficulty in the past in making a wire-cut face brick, but I have never before had a bar of clay so stiff as it is necessary to run this clay. It is a ——— outfit we have, and the wires and die were fixed by them. I have also tried to plough it off, but with as little success as with the wires. I should feel very pleased if you could suggest some means whereby I might be able to correct this. This is the brick our customers are calling for.*

We are of the opinion that the installation of two vertical rollers on each side of the clay bar as it passes the wires which cut off the side slabs might help considerably in keeping the corners sharp. These rollers should be placed so as not to exert too much pressure upon the bar and should be covered with wool or other soft material so as not to deform it. If such rollers were installed they might keep the pieces of the bar together a sufficient length of time to overcome the destructive effect of the wire upon the corners of the brick.

Your remark with regard to the trouble which you are having in cutting the face of the brick, due to the stiffness with which the clay is run, explains your difficulty. The only thing that we can suggest to eliminate the trouble from this source is to make the top wire as tight as possible, using a crow bar to obtain this result, if necessary.

* * *

Recovering Coke from Kiln Ashes

821. *Illinois—We note your communication No. 819 regarding recovering coke from kiln ashes. We believe that the introduction of this amount of carbon in our clay would add to our oxidizing troubles and would, therefore, be impractical. Have you any information on this point? Further, have you any information about an apparatus for separating the coke from ashes?*

Answering this correspondent, we wish to quote from a letter received from Roy G. Smith, Kansas City, Mo., who

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Get This Can on TRIAL

Keep your belts from slipping. Don't let them rot.

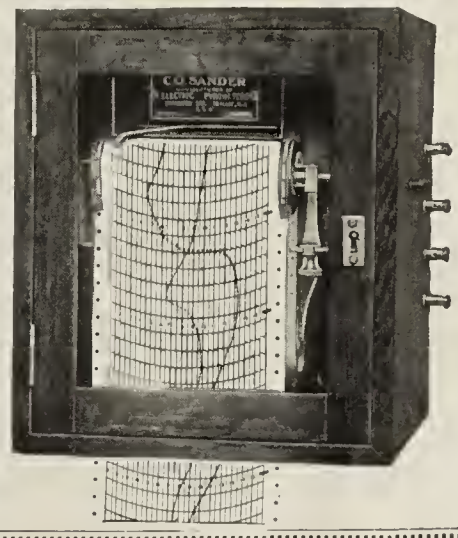
"SERO" Belt Dressing

makes them efficient.

"Sero" on your belts reduces the power consumption and prolongs the life of the belt.

Sero Specialty Co., Cleveland, O.

We also make "Séro" Gear and Cable Coating and Manila Rope Dressing.



Results

For Pavers—
A lower rattler test.
For Facing Brick—
Hard and uniformly colored.
For Sewer Pipe—
Sound and uniformly glazed.
For Hollow Ware—
Hard—well burned.

These are our predictions of what you can accomplish with your ware—if you are aided by a

SANDER PYROMETER

They are surprisingly low in cost. Ask for our catalogs.

The Sander Instrument Co.

136 19th Ave. Irvington, N. J.



B. & B. Two-Bucket Aerial Tramway

requires but one man for its operation, reduces cost of hauling clay and shale to a few cents per ton.

Outline your haulage conditions and we will gladly estimate the cost and possible savings to you.

Ask for Catalog No. 16.

Broderick & Bascom Rope Company

St. Louis, Mo.

SAY "I SAW IT IN" BRICK AND CLAY RECORD



SIL-O-CEL
PREVENTS HEAT PENETRATION
TRADE MARK
MADE FROM CELITE

INSULATE the crowns and walls of your kilns with Sil-O-Cel Insulating Brick and Powder.

Produces absolutely uniform heat and reduces fuel consumption. Keeps the heat where it is productive. The reduction in rejected pieces will pay for the insulation in the first month of operation.

CELITE PRODUCTS COMPANY
NEW YORK 11 Broadway CHICAGO Monadnock Bldg PITTSBURGH Oliver Bldg LOS ANGELES Van Nuys Bldg SAN FRANCISCO Monadnock Bldg

Write nearest Office for Samples and Information.

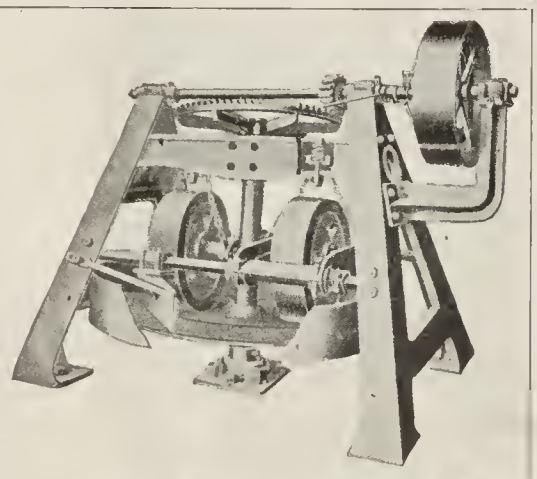
The "Rust Special" Clay Feeder

is a wonder for work and in scores of brick plants it has paid for itself the first year. It feeds the clay evenly, prevents clogging and insures a perfect mix. Send for literature and prices.

Marion Machine, Foundry & Supply Co.
Box 395, Marion, Indiana



THE EAGLE DRY PAN



Write for Prices

EAGLE IRON WORKS DES MOINES IOWA

Base Metal Couples and Low Resistance Instruments are absolutely unfitted for use on Clay plants.



We do not and we will not sell that class of equipment for measuring temperatures exceeding red heat.

STUPAKOFF PYROMETERS

for high ranges of temperature are equipped only with rare metal couples and high resistance galvanometers. They are dependable and we guarantee satisfaction.

The Stupakoff Laboratories
Pittsburgh, Pa.

provided the answer to 819 Pennsylvania which appeared in the May 8 issue of *Brick and Clay Record*. Upon being asked for additional data along this line, Mr. Smith says:

"So far as I have been able to observe, carbon, in such form as it would be in a case of this kind, gives no trouble.

"Most of the Texas plants add lignite to the clay; other plants, especially those in Minneapolis, add sawdust. The object in each case is to make porous ware which reduces shipping weight and at the same time answers every purpose so far as strength is concerned.

"From my observations, clays which carry carbon in a finely divided form as when the carbon is a part of the clay deposit, have to be handled very carefully in the early stages of the burning to prevent swelling, but this does not seem to be the case where coarser material is added to the clay as above indicated."

Referring to the matter of recovering coke from kiln ashes, Mr. Smith states that he does not believe it is practical to separate unburned fuel from ashes and has never heard of any equipment for this purpose. He says it could be done by using a small screen and hand sorting method but the returns would not be in proportion to the cost.

Another concern to which we wrote concerning this matter says:

"We know of nothing of this sort, and while we have never given the subject any detailed study, our first impression is that even with the present high price of coal, there would be little possibility of recovering enough value from the ash to pay for handling the large volume which would have to be handled under ordinary working circumstances.

"Looking at the matter in another way, it appears to us that if there would be sufficient coke in the ash to pay for recovering it, then the methods of firing or the design of the furnace would need attention rather than a means of recovering the coke."

We are making some further investigation as to a machine for the above purpose and have obtained a new clue, which is being run down. It may be that in the next issue we shall have some information of interest along this line.

* * *

IN *the* WAKE *of the* NEWS

Being Brief Mention of a Host of Interesting Happenings in the Varied Fields of Clayworking

Personal

Francis W. Swift, owner of the Terra Cotta Tile Co., of Ottawa, Ill., died recently in Dayton, Ohio, on May 10.

M. Thomsen, president of the Denny Renton Clay & Coal Co., Seattle, Wash., has returned from a two weeks' visit to San Francisco.

John Curtis, president and general manager of the F. J. Guard Clay Products Co., of Wilkes Barre, Pa., is taking an extended trip thru the south for his health, which will last for a period of about three weeks.

The smiling visages of J. W. Moulding, secretary-treasurer of the Thomas Moulding Brick Co., of Chicago, Ill., and A. P. Grant, president of the Grant Tile Manufacturing Co., of New York, were seen recently on the streets of San Francisco.



Robert Taylor, Jr., resident manager of the Hocking Valley Products Co., of Columbus, Ohio, has enlisted in the officers reserve training school and will soon report to Fort Benjamin Harrison, at Indianapolis, for training. He originally served in the Maryland National Guard.

H. C. Kleymeyer, general manager of the Standard Brick Manufacturing Co., at Evansville, Ind., has been elected a director of the Wisconsin Smoke Consumer Co., which has been organized to sell smoke consumers in the state of Wisconsin. Mr. Kleymeyer was recently instrumental in organizing a company to sell smoke consumers in the state of Kentucky.

Arthur S. Cunningham, vice-president and general manager of the California Clay Corporation, is expected back from the East early next week, where he went to purchase machinery for the $65,000 factory which his company is to erect at Ione. The new concern will specialize in the manufacture of fire brick and has already received a number of good sized contracts for this line from the navy department.

Henry Brinkman, proprietor of a drain tile plant at Mt. Vernon, Ind., and said to be the oldest business man in Posey County, recently celebrated his ninety-second birthday at his home in Mt. Vernon. He has been actively engaged in business in Mt. Vernon for more than fifty years. Daily he makes a trip to his tile factory located a mile from Mt. Vernon and oversees and directs the work of a large force of men. He is in good health and says he expects to live to celebrate his one hundredth birthday.

California

The city of San Francisco has called for bids on vitrified brick pavement to be put in on Harper and Randall streets.

The Sacramento (Cal.) Clay Products Co.'s plant and equipment is to be offered at a trustees' sale on June 4. The sale will be held at Sacramento.

It is reported that the brick plant located at Fulton, Cal., on the Gurneville branch of the Northwestern Pacific Railroad, is to be reopened this summer with a force of seventy workmen.

C. B. Stowe, an eastern magnesite man, has spent several weeks at Porterville, Cal., securing data on the available magnesite tonnage to be secured in that region. He plans to establish a magnesite brick factory on the Pacific Coast provided prospects for a long-time supply of raw materials can be secured.

A. H. Simons, president of the Simons Brick Co., of Los Angeles, was a San Francisco visitor recently. Mr. Simons reports a very good business in the southern part of the state. He is now supplying brick for the Dillon Block, being erected at Seventh and Hill streets, Los Angeles. It will be six stories in height and constructed on a lot 150x117 feet.

The S. P. Brick Co., of Exeter, Cal., began operations on May 2, with a force of about twenty-five men, after the winter shut-down. L. E. Hayes, manager of the company, looks forward to a very prosperous year, since a heavy demand is being felt for its product. Large quantities of brick have already been shipped to take care of some of the orders on hand, 330,000 brick going from the plant during a period of ten days.

Due to an acute shortage of brick in Stockton, Cal., work on several new structures recently had to be stopped until additional shipments were received. Contractors at

The "BETTER WAY" To Do It—

Elwell-Parker **SELF-LOADING** Electric Trucks

eliminate the wheel-barrow entirely; and by the use of separate, inexpensive, detachable racks in connection with the truck, there is no lost motion at either end.

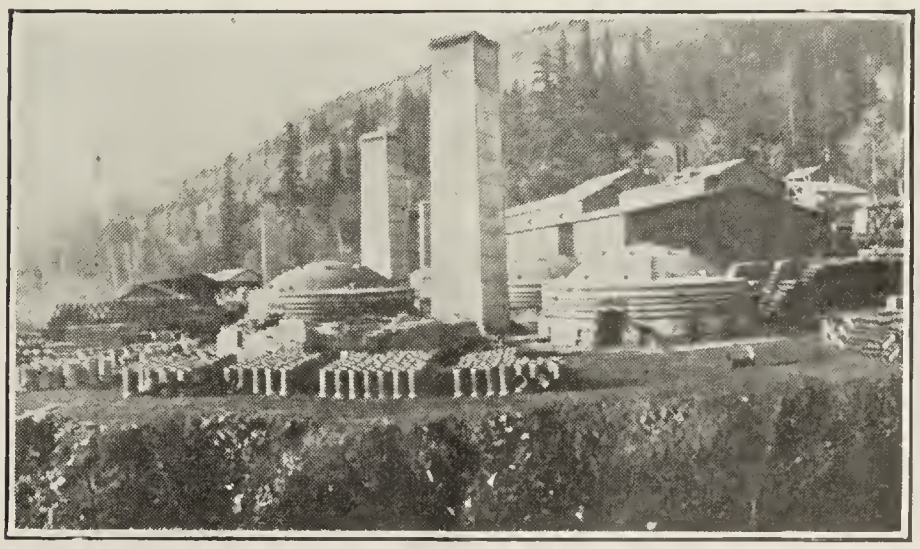
Fewer men required, but each man on the job is enabled to do more work. Breakage is reduced to a minimum.

THE ELWELL-PARKER ELECTRIC CO.

Principal Offices:

Boston, New York, Pittsburgh, Cleveland, Chicago, San Francisco, Portland.





Fire Brick and Sewer Pipe Plant For Sale in British Columbia

For Sale By Receiver

THE ENTIRE PLANT AND UNDERTAKING OF THE KILGARD FIRE CLAY COMPANY, LIMITED, situated at Kilgard, B. C., on the line of the Great Northern Railway, about fifty miles from Vancouver, and on the famous FIRE CLAY MEASURE of the SUMAS MOUNTAIN.

This plant is modern in every particular and was completed four years ago. It was planned by one of America's most eminent Ceramic Engineers for the economical and efficient handling of the Clays which are located in the face of the mountain at the rear of the Works, in the manufacture of FIRE BRICK, BUILDING BRICK, SEWER PIPE.

The cost of the undertaking was approximately $550,000.

The undersigned has been authorized to dispose of the entire property by private sale, and will give full particulars, including clay analyses, tests and estimated tonnage, etc., to bona fide prospective purchasers.

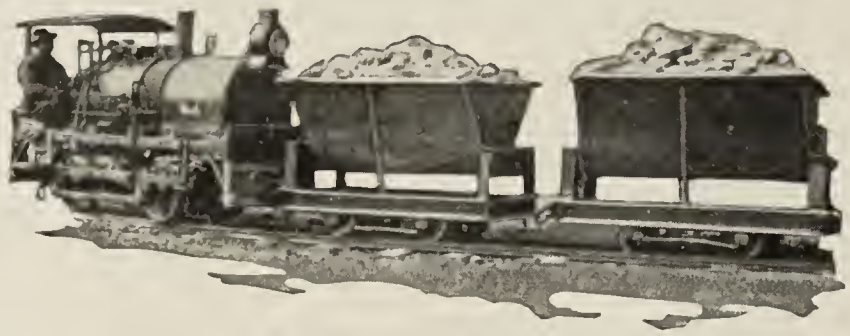
For full particulars apply to

W. E. Hodges, *Receiver for the Debenture Holders*

210 Bank of Ottawa Bldg., Vancouver, B. C.



Bell Steam Locomotive



Hauls Clay

farther, faster, more of it and cheaper than mules, man power, electric, gasoline or coal fired locomotives.

It Burns Kerosene

costing Nine Cents per Gallon, requires no licensed engineer, is easy to run and the upkeep is low.

It's a dandy for your work.

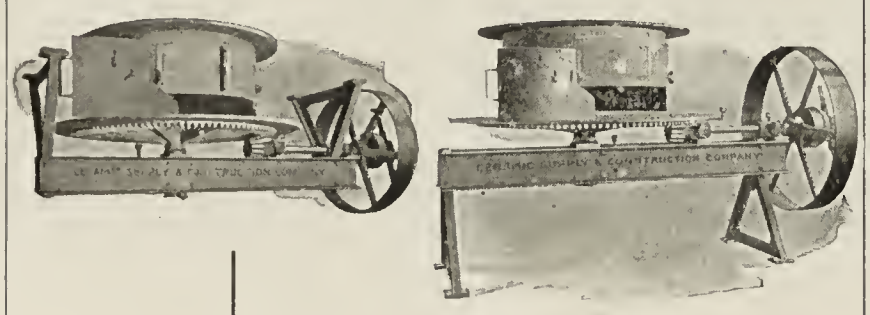
Write to the

Bell Locomotive Works, Inc.

30 Church Street **New York City**

Save Labor

Feed Your Clay Automatically



Bolted to Bin or Set on Floor

(Either Way By Merely Reversing Two Brackets)

No Obstructions Under Disc
Feeds Anywhere Desired

The

Ceramic Supply & Construction Co.

COLUMBUS, O.

SCREENS — KILNS — OHIO DRAFT GAUGE

this point are said to be experiencing considerable difficulty in securing brick for the jobs upon which they are working because the manufacturers are unable to keep production abreast of the unusually heavy demand. No fault has been found by the contractors with the recent increase in the price of common brick from $7.50 to $10 a thousand—they are agitating, it is said, for more brick and steady deliveries, at any price. In discussing the subject of the brick shortage, local contractors have expressed the hope that more brick manufacturing plants would be placed in operation in California to help meet the tremendous demand for burned clay ware which exists on the Pacific Coast.

Connecticut

Forest fires, which raged for several days near Haddam, Conn., destroyed 2,000 cords of cut timber owned by the I. L. Stiles & Son Brick Co., of New Haven.

Fire recently destroyed a large barn on the property of the American Brick Co., at Berlin, Conn., and also consumed several tons of hay and several hundred feet of lumber with considerable loss to the company.

Workmen at nearly all of the brickyards in Berlin, Middletown, and other Connecticut brick manufacturing districts have demanded increased wages with the reopening of the plants. One or two minor strikes have occurred, but with the big demand for brick and the scarcity of competent help the owners generally have been willing to meet the demand. Practically all of the many yards in this section are now in operation, and those companies in touch with business conditions look for capacity business well into the coming fall and winter. A number of the manufacturers are planning to equip their plants to enable them to operate thruout the year, in order to keep up with the demand for their product.

Delaware

The Crescent Fire Brick Co., Dover, Del., has been incorporated with a capital of $125,000, to quarry silica rock and sand. William F. O'Keefe, George G. Stiegler and E. E. Wright, Wilmington, are the incorporators.

Idaho

J. R. Stanwood recently re-located his brickmaking plant at Gooding, Ida., on a newly acquired seven-acre tract of land on the west side of the town. An electric motor was installed and other improvements made which have increased the daily capacity to 13,000 brick.

Illinois

The West Salem (Ill.) Hollow Brick & Tile Co. is furnishing the brick for several new buildings and improvements at Grayville, Ill.

Four new kilns are nearing completion at the plant of the McEwing & Thomas Clay Products Co., at Elmo, Ill. This company is furnishing brick for a number of school houses in Illinois and for the Elks' hall at Lawrenceville. Ill.

M. D. Kitterman, of Tiskilwa, Ill., formerly proprietor of the Buda (Ill.) Brick & Tile Co., has sold his plant to Louis and George Sweet, both of Buda. The plant manufactures both brick and drain tile and has a capacity of 15,000 brick a day, or its equivalent in tile.

Indiana

Brick manufacturers in Evansville, Ind., report business as being rather quiet at present in that city, but that the



out-of-town business is brisk enough to leave little room for complaint. The Standard Brick Manufacturing Co. reports that it has been doing a good business in Chicago and other Illinois cities. This company is furnishing the brick for new churches at Morgantown and Lewisburg, Ky., and for a large residence at Bowling Green, Ky., a store building at Madisonville, Ky., and the new Carnegie library at Newburg, Ind. The company has also received an order for the face brick for a new school building at Marion, Ky.

On June 1, the Standard Brick Manufacturing Co., at Evansville, Ind., voluntarily increased the wages of its employes ten per cent. for the second time within six months, having raised the wages of all its employes ten per cent. last December. In explaining the recent raise John Andres, secretary and treasurer of the company, said he believed the men had the advance coming to them in order to meet the high cost of living. The new plant that has been erected by this company at Evansville is now about completed, it having been put thru a "trial spin" on Monday, May 28. Within thirty days or six weeks it is expected that the plant will be operated on full time, manufacturing 30,000 brick a day. The company recently purchased eighty acres of ground near the new plant which furnishes almost an inexhaustible supply of good clay.

Iowa

A huge clam shell shovel has been installed in the clay pit of the Oskaloosa (Ia.) Vitrified Brick Co.

Kentucky

Kleymeyer-Klutey Brick & Tile Works, of Henderson, Ky., is furnishing the brick for a Y. M. C. A. building being erected by the Roseclare (Ill.) Lead & Flour Spar Mining Co. The brick are being sent down the Ohio River in barges.

The P. Bannon Pipe Co., which began the manufacture of the Dennison interlocking tile, some time ago, is supplying a big job in Lexington, Ky., with that material. Hollow tile is also going from the Bannon plant to the public warehouse additions in Louisville and to the Standard Oil Co. of Kentucky, which is building a million-dollar refinery west of Louisville.

Drain tile is forming the bulk of the output of the plant of the Southern Brick & Tile Co., Louisville, Ky., at this time. T. Bishop, the active head of the company, observed that they sold out of most sizes on this stock last season and, since the prospects are good for a big business this coming season, is providing against a shortage in this product. There are numerous big drainage prospects that are getting pretty well under way which will call for a large amount of drain tiling on individual farms.

Something of an improvement in the car situation, altho not so noticeable except for shipments into Kentucky territory, is being made the most of by the brick trade in and around Louisville. The demand continues to come largely from the country districts and the towns, altho there is still a cosiderable volume of unfilled orders on the books for delivery in Louisville, and cars for shipment are somewhat scarce. Trucking is beginning to be considered, altho it has been discovered that the roads, suitable for ordinary travel, do not stand up under the weight of big trucks.

A considerable number of small orders are being received as a result of a disastrous fire in Lexington, Ky., while the rebuilding of tornado-swept western part of that

Prevent Scummed Brick

Use

Rollin Barium Carbonate

If your brick has a tendency to scum, to produce an unsightly efflorescence on the wall, it can be corrected by a judicious use of Rollin's Barium Carbonate, at the pug mill. The process is easily carried out and is very inexpensive, but the result is a satisfied list of customers and a sense of security. Write now to

Rollin Chemical Company, Inc.

Charleston West Virginia

General Sales Agents
National Aniline & Chemical Co., 100 William St., New York

Satisfaction Guaranteed

We personally oversee each installation, making sure that the responsible burner understands and is thoroly capable of interpreting results from

THE VERITAS FIRING SYSTEM

This method of determining temperatures and governing burning progress in a kiln is remarkable in its simplicity and dependability, yet it is so low in price that the smallest plants can afford it.

It is certainly an evidence of merit when such plants as the Hydraulic Press Brick Co. and the Dover Fire Brick Co., both of Cleveland, Ohio, use and recommend it. Write immediately to

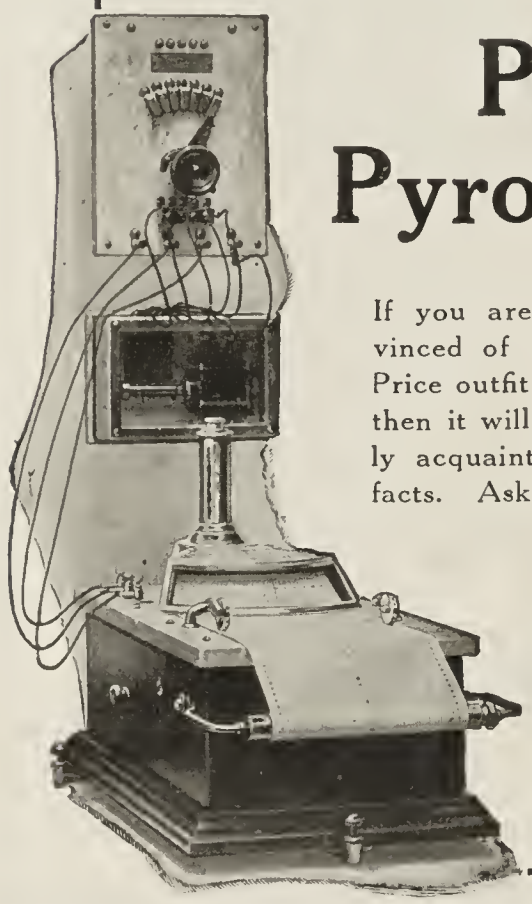
The Veritas Firing System Co.

Trenton, New Jersey

or Herbert Forester, Box 37, Cleveland, O.



We will gladly furnish you with the names of users on some of the largest plants in the world, all equipped with



Price Pyrometers

If you are not already convinced of the savings that a Price outfit will make for you, then it will pay you to thoroly acquaint yourself with all facts. Ask for our list.

The Price Electric Co.

12367 Euclid Avenue

Cleveland, Ohio

You won't have to worry about competition if you treat your clay with

R. H. Precipitated Carbonate of Barytes

You can safely guarantee that your brick will be

Scum-Proof

You can get a higher price and influence architects to specify your product because Efflorescence is prevented absolutely.

But insist on the R. H. BRAND—it's dependable.

We have a complete line of high grade chemicals for the clay industry.

The Roessler & Hasslacher Chemical Company

100 William Street New York

Chicago, Ill. Cleveland O. St Louis, Mo.
Kansas City, Mo. San Francisco, Cal. Philadelphia, Pa.
Boston, Mass. New Orleans, La
Cincinnati, O.

state will call for a considerable amount of brick and tile. The fire in Lexington has emphasized the desirability of fireproof construction. An excellent example of the fire resistant qualities of brick construction was afforded when a fire which destroyed a large tobacco warehouse in Louisville on May 27, causing a loss of about $200,000, was prevented from spreading to an adjoining warehouse by the brick fire wall constructed for that purpose.

Maryland

John H. and Louis A. Dookman, 32 Montgomery Street, Baltimore, Md., will build a series of hollow tile and brick silos at Rock Creek. D. A. Capen, Warrenton, Va., and Harry Keller, Bucketsville, Md., have submitted bids for the construction.

Massachusetts

Amos Eisenhur has purchased the property of the New England Brick Co., at Bridgewater, Mass. The purchase includes land, buildings and machinery.

The Medford (Mass.) firemen were called out on May 22 to quench a brisk fire at the yards of the New England Brick Co., of that city. The blaze started on the roof of one of the kiln sheds, and did considerable damage.

The Westfield (Mass.) Clay Products Co. has spent about $40,000 in making improvements and installing modern equipment in the large brickmaking plant at Westfield, which it recently purchased.

Michigan

W. S. Reynolds, James Alton, and G. C. Tremaine are the principal stockholders in the newly incorporated Clay Products Co., at Detroit, Mich., which has been organized with a capital of $100,000.

Constructional work has begun on a $40,000 addition to the plant of the Sparta (Mich.) Tile & Brick Co., made necessary by the tremendous growth in business enjoyed by this company. Modern machinery will be installed and especial attention given to the manufacture of hollow tile.

Minnesota

E. J. Willits has purchased a ten-acre tract of land at Bemidji, Minn., upon which he is planning to erect a brick manufacturing plant. Work will start upon the factory as soon as all preliminary arrangements have been completed.

The plant of the Ripley Brick Co., located at Houghton, Minn., resumed operations on May 16 after its customary winter shut-down. Manager Wyckoff reports prospects for the coming season as being especially good and looks forward to a very active summer.

Missouri

A new stack sixty feet high and twenty feet in diameter at the base has just been completed at the plant of the Mitchell Clay Manufacturing Co., of St. Louis, Mo. In an effort to catch up somewhat with orders the company has appreciably increased the capacity of its plant by erecting an additional kiln.

Practically every St. Louis brickmaking company reports record-breaking volumes of business. Most firms are only taking orders subject to future delivery, because of the heavy demand for their products. Deliveries in nearly all cases are tardy, due to lack of sufficient output and inability to obtain railroad cars. Many firms, in order



to placate customers of long standing, are shipping parts of orders to each. Several have warned contractor-customers not to take additional contracts calling for brick work until they have assurances that the brick can be delivered. While some of the inconveniences to customers is due to the car shortage, the main factor in slow deliveries is lack of brick at the plants.

Montana

The Missoula (Mont.) Clay Products Co. is the name of a new concern which has taken over, and will put in operation, the brick factory located at that point, which has been lying in idleness for more than two years. George W. Beam, of Portland, Ore., has been engaged as superintendent of the plant. Twenty men will be employed and 50,000 brick will be manufactured daily.

Nebraska

E. W. Grover has placed his brickmaking plant at Ord, Neb., in operation for the season.

New Jersey

The Victor Brick Co., recently incorporated in Delaware, has filed registration papers at Camden, N. J., to operate in that vicinity.

The Raritan River Clay Co., Keasbey, N. J., specializing in the production of hollow tile, has raised a large American flag at its plant.

The New Jersey Terra Cotta Co., Perth Amboy, N. J., is furnishing the terra cotta for the new bank building being erected at Maple Avenue and Smith Street by the Perth Amboy Savings Bank.

The American Hollow Tile Co., Inc., has filed an amended charter with the secretary of state at Trenton, N. J., changing the principal office of the concern from New Brunswick to 458 South Main Street, Hightstown.

A very effective damper has been placed upon operations along the Hackensack River and in the New Jersey and New York brickmaking centers by the cold and rainy weather which has continued thruout the "spring" of the present year. Altho a few brick have been burned and shipped, yet the inclement weather has hindered the operation of the open air yards to a great extent. Manufacturers feel somewhat impatient since, with the outlook exceedingly promising, opportunities are rapidly fading away merely because they cannot get their stock out in time to take advantage of the enormous demand.

Newark, N. J., was somewhat startled a few days ago to learn that the United States Steel Corporation has purchased sixty acres of land in what is known as the Newark Meadows, adjoining Port Newark, upon which it proposes to erect an immense shipbuilding plant. It is hoped by some that this step will lead to the ultimate concentration of manufacturing activities of the United State Steel Corporation at that point since transportation facilties will be exceptionally advantageous. Even tho this future development does not materialize, the location of a branch plant at Newark will mean the construction of hundreds of dwelling houses for the employes of the corporation, and the use of a great amount of burned clay building material.

Brick users on the New Jersey side of the North River are convinced that present prices of $10, or more, per thousand cannot last much longer. While the yards along the Hackensack are severely hampered in their operations by

Jenkins Bros. Valves

Specifying Jenkins Bros. means freedom from valve troubles.

Means getting the original Jenkins renewable disc valves, with body, trimmings and all working parts strong and well proportioned. Means getting valves made of a superior grade of new steam metal—no scrap or yellow brass.



Specifying Jenkins Bros. also means getting valves which seldom wear out in service. All parts are made to gauge and are interchangeable, and when necessary repair parts can be obtained through your dealer at nominal cost. Most of the wear comes on the disc, which can be replaced easily, quickly and inexpensively.

Look for the trade mark and specify the name in full—Jenkins Bros.

REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros

Jenkins Bros.

80 White Street, New York. 524 Atlantic Avenue, Boston.
133 N. 7th Street, Philadelphia. 300 W Lake Street, Chicago.
Jenkins Bros, Limited, Montreal, Canada, and London, E. C. England.

REG. U.S. PAT. OFF. TRADE JENKINS MARK Jenkins Bros



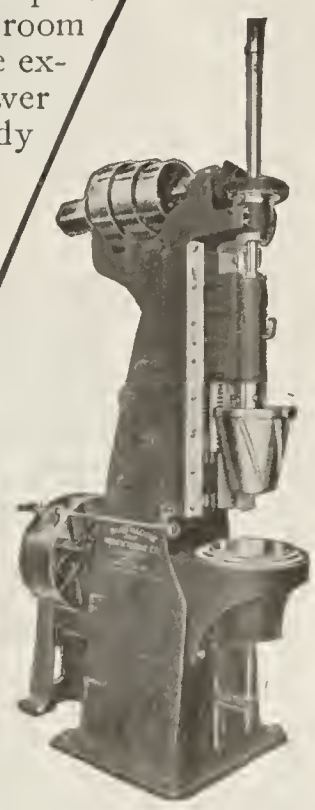
A bi-product that is profitable

Place the machine off in one corner of your plant, and let it absorb the spare time of your machine room men. They soon become expert, and a stock of flower pots quickly collects, ready for the kiln.

It is almost pure velvet—a bi-product—a sure seller with a manufacturing cost low enough to insure a goodly profit.

Send us sample of your clay and let us show you what our flower pot machine will do.

Baird Machine & Mfg. Co.
54-56 Jefferson Ave.
Detroit, Mich.





HETTRICK RED STITCHED CANVAS BELTING

Sticks—Doesn't Slip—Lasts



It Certainly Beats Them All.
It's the ideal belt for the clayworking plant in connection with

Elevating—Conveying Transmission

It is proof against water, oil, dust, sudden jerks and over-loading. No matter what the conditions are a Hettrick Belt keeps on giving service until it wears out—and it takes it a good long time to do that.

THE HETTRICK MFG. CO.
TOLEDO, OHIO

Gold Medal Award



Panama-Pacific Exposition
for

THWING
HIGH RESISTANCE MULTIPLE RECORD
PYROMETERS

Their Merits are Vouched for by Hundreds of Satisfied Users
Ask for our New General Catalog No.8

THWING INSTRUMENT CO.
3336 Lancaster Ave. - Philadelphia, Pa.

lack of labor and bad weather, the territory can be supplied from the Raritan district, or from the Hudson River yards. In some instances prices have been shaded fifty cents or a little more on large orders, but on others they are held steady at the former quotations of $10. How long or how severely the labor shortage will affect the New Jersey yards it is quite impossible to say, but thus far this season relatively slow work has been done because of the impossibility of securing help. Where formerly half a dozen men begged for one job, now half a dozen jobs are waiting for one man.

New York

Joseph Bleau, formerly of Newton Hook, N. Y., recently purchased the brick yard at Watervliet, N. Y., from H. E. Retalick. Improvements and enlargements designed to increase the capacity of the yard to at least 35,000 brick a day are being planned by the new proprietor. Mr. Bleau has been superintendent of the Cary Brick Co., at Newton Hook, for the past eleven years, and has been engaged in brickmaking since boyhood.

North Carolina

C. M. Reaves, of Fairmont, N. C., has purchased the brick and tile manufacturing plant formerly operated by H. Barnes, at Procterville, N. C. He has already installed new machinery and equipment and plans to place the plant in operation shortly.

Ohio

The Iron Clay Brick Co., Columbus, Ohio, has been awarded a contract for the hollow tile to be used in the erection of a new building for the Kanawha Banking & Trust Co., Charleston, W. Va.

The Belt-Bovard Co., of Ashtabula, Ohio, has been incorporated with a capital of $1,000 to manufacture brick. The incorporators are H. C. Belt, W. S. Bovard, Miletus Garner, John B. Haney and John D. Knight.

The American Sewer Pipe Co., of Akron, Ohio, has purchased an eight-acre parcel of land on Triskett Road, Cleveland, upon which it plans to erect a builders' supply warehouse. The land joins the right of way of the New York Central Railroad in the West Park district.

C. B. Young, head of the Ohio State Brick & Stone Co., of Columbus, Ohio, which took over the plant of the Shawnee (Ohio) Flash Brick Co. reports progress at the plant. The only drawback at this time is the car shortage which is holding up shipments to a large extent. Face brick is the principal product of the factory.

Letters have gone out from the offices of the National Paving Brick Manufacturers' Association, Cleveland, Ohio, to county commissioners in Ohio, pointing out that any tendency to curtail road improvement work on the ground of war economy will defeat such economy and impair the economic and military resources of the country.

The Pursell-Grand Co., of Cincinnati, Ohio, reports that it is receiving several contracts for brick, but that bad weather and adverse conditions have made work comparatively scarce. The company will supply 180,000 brick, in mingled shades, for the new Norwood school, and 75,000 for a church in Oakley, to come from the plant of the United States Brick Co., at Tell City, Ind.

Bids will be received June 14, by State Highway Commissioner Cowen for improvement, at an estimated cost of $1,042,614.76, of 159.44 miles of roads in forty-one Ohio counties. The work includes fifty-nine contracts. It is



estimated that $854,920.64 will be spent on the construction of 53.11 miles of new state-aid highways, and $187,694.12 on repairing of 106.33 miles.

A flag raising by the employes of the Ironclay Brick Co., at Shawnee, Ohio, was held on May 19. The company furnished the flag, which was one of the largest obtainable, and the men donated the labor and pole. The celebration included talks by several ministers and leading citizens of Shawnee and the singing of patriotic songs by the employes.

The Cincinnati Board of Education will erect in the West End of the city one of the largest and most handsome school buildings in Cincinnati, for the exclusive use of negro pupils. The structure will cost $300,000, exclusive of heating and ventilating equipment, and will be constructed principally of brick. It will contain thirty class rooms and a large auditorium.

The Ohio Board of Administration closed a deal whereby the trustees of the Ohio State University will use a half million of the paving brick which have been made by prisoners at the Junction City brick plant. They will be used for building foundations and paving at the university. A number of orders for prison-made brick have been received by the board, but it is having trouble in getting cars to make the deliveries. No more brick will be made at the plant until coal can be purchased much cheaper than it is offered at the present time.

Under a ruling of H. Stanley McCall, second assistant attorney-general, Cincinnati's council is without legal authority to award contracts for street improvements where bids are higher than the engineer's estimate. The substance of his ruling will be transmitted to the city council by City Solicitor Charles A. Groom, to whom the question was referred for an opinion. The effect of the ruling will be to make invalid a number of assessment ordinances passed for streets on which improvements are contemplated.

At Akron, Ohio, the county commissioners have on several occasions failed to receive any bids for brick roads which were to be constructed, on account of the difficulties which contractors have found themselves in due to the high cost of brick and the difficulty of getting deliveries, both of brick and cement. The commissioners are casting about for some means of meeting the situation in a way satisfactory to the contractors, as they desire to get the work done, if possible, during the summer months.

Emmet Howard, sales manager of the Claycraft Brick Co., of Columbus, Ohio, left late in May on an extended business trip to Washington, Philadelphia and New York. He will investigate building conditions in eastern cities. In speaking of conditions in the face brick industry, Mr. Howard said: "Conditions as to car supply are not improving to any extent. We have a little better car supply at the Groveport plant, but at Shawnee there is a woeful lack of cars and if things do not improve soon we may have to shut down. We find a fairly good demand for face brick in certain sections."

W. T. Rossiter, general manager of the Cleveland (Ohio) Builders' Supply Co., recently stated that Cleveland would experience very rapid growth as a result of the business which would develop thru the immense expenditures which the government will make in the coming few years, and is confident that the low market prices in that city act as a stimulant to the erection of more factories and homes. Going



Marion

Steam Shovels, Dredges, Draglines and Kindred Machinery

WANT any pointers on revising production-volume *upward* and operating costs *downward?* Universal Brick & Tile Co., Oskaloosa, Mo., can probably give you some! They used to worry along with hand-labor; then they re-equipped their plant, installing a "Marion" and other improvements. Here's the story:—

9 MEN BY HAND, 40,000 BRICK DAILY
7 MEN AND A "MARION," 150,000 BRICK!

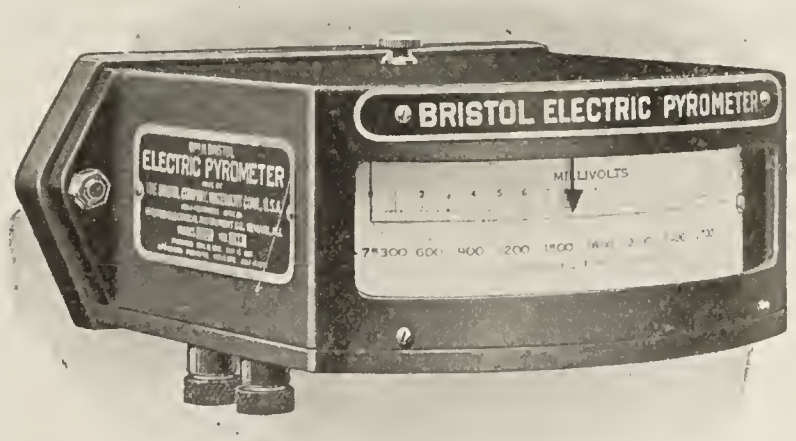
And production has become more uniform, too, because "Marions" do the same good, dependable work down in a hot, stuffy pit as they do out in the open; rain and snow mean little, so long as there's material to be dug.

Do you know what "Marion, the Clayworker's Shovel," can do for *you?* Ask us, now; no obligation.

The Marion Steam Shovel Company, Marion, Ohio

Branches: Atlanta, Chicago, New York, Philadelphia, San Francisco, Seattle

218 ESTABLISHED 1884



EQUIPPED WITH WESTON MOVEMENTS

Bristol's Indicating Electric Pyrometer, High Resistance model is equipped with a new pivot jewel type high resistance movement. Manufactured by the Weston Electrical Instrument Co.

BRISTOL'S ELECTRIC PYROMETERS

are of very rugged construction and suitable for shop service. Especially suited for use in connection with brick and pottery kilns.

WRITE FOR BULLETIN 205

THE BRISTOL CO. Waterbury, Conn.

Branch Offices: Boston New York Pittsburgh Chicago San Francisco



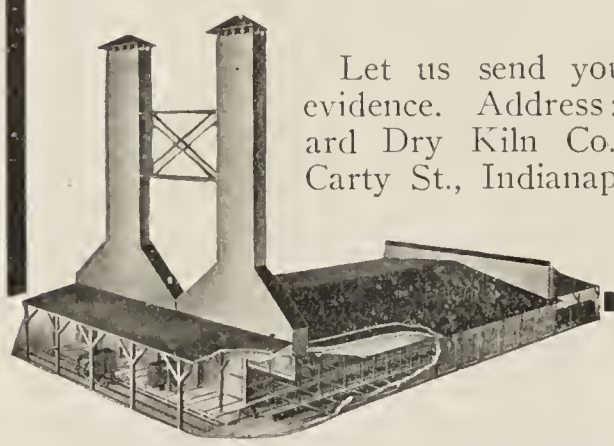
NATURE

is the Great Scientist. But her processes, though sure, often are tediously slow. In brick drying, for example.

Far faster yet equally sure results are secured by The Standard Natural Draft Drying System.

Scientifically patterned after Nature's own process, The Standard Drier is perfectly adaptable for *all varieties* of clays.

Its 30-year record of successes throughout the brickmaking world proves this.



Let us send you convincing evidence. Address: The Standard Dry Kiln Co., 1540 McCarty St., Indianapolis, Ind.

Isn't it strange that You haven't a Beighlee?

Wonder if you realize that in construction and operation, it is one of the most beautiful instruments that you ever laid your eyes on?

Have you investigated it, asked any questions, read the catalog?—don't you know that you ought to know all about it.

We've sold to high class plants because of merit—for these plants want results.

No pyrometer is quite so good as the Beighlee.

Will you challenge us?



Better ware at a lower cost, it can be done. Ask how.

Beighlee Electric Co.

Cleveland, Ohio

HERMAN A. HOLZ,
Hudson Terminal Bldg., New York
Representative in New England State

further, Mr. Rossiter says: "The financial analysis seems to leave success or failure of the present building conditions in our own hands. Timidity and fear should be replaced with confidence and courage, and even in the face of the present war Cleveland must keep step in her building with the other cities in the United States.

The Metropolitan Brick Co., formerly the Bessemer Brick Co., of Youngstown, Ohio, is planning to erect a handsome two-story office and general headquarters building for its use in Youngstown, according to an announcement which has been made by General Manager Roy Wallace. The structure will contain, besides facilities for the office work of the company, club rooms for the employes, shower baths, lockers and other conveniences. The company reports considerable difficulty of late in moving brick, as the congestion of freight at terminals and the increasing urgency of government business is causing heavy freight, such as brick, to be put aside by the railroads.

After a compromise had been entered into which seemed to amicably settle the labor trouble at the new Hamilton County courthouse, Cincinnati, Ohio, adjusting the strike which has kept the work on the building tied up since January, the trouble broke out afresh during the week which ended May 26, and in despair the contractor resorted to the courts, obtaining a temporary injunction against all of the unions involved, and affiliated with the Building Trades Council. The contracting company pointed out in its petition that the strike was called on January 26 on account of a dispute between two unions, and without any fault of the contractor. The chief trouble at present is that all of the union men on the work threaten to strike unless the metal workers comply with their part of the compromise agreement.

The last outstanding difficulty of Cleveland's building war was settled and the decks cleared for the organization of a permanent conciliation board, when the Cleveland Building Trades Employes' Association and the sheet metal workers came to terms on May 21. The aim of the proposed board is to make Cleveland a strikeless city, and while its future is not in any sense assured, the movement is receiving the co-operation of both the building trades labor council and the employes' association, and both sides look forward with hope to the outcome of negotiations. The conciliation board will consist of fourteen members, seven appointed by the employers and seven by the employes, and it will represent and act for the entire building trades of the city. It has subscribed to a set of principles, agreed to by both sides, which, according to all predictions, will eliminate friction in the future.

The stockholders of the Puritan Brick Co., of Hamden, Ohio, which during the year changed its charter from West Virginia to Ohio and increased its capital to $375,000, have been called to meet at the offices of the company, June 13, for the purpose of considering and voting on certain changes in the by-laws. A change of name from the Puritan Brick Co., the West Virginia name, was authorized some time ago, and the new stock of the Ohio corporation is ready to be issued by an exchange of old Puritan company stock or stock of the Ohio Cement Co. for stock certificates of the new company. At a recent meeting the following officers and directors were elected: President, John Y. Mainland, Newton Center, Mass.; vice-president, S. E. Boggs, Good Hope, Ohio; secretary and treasurer, H. P. Harding, Hamden, Ohio, and these additional directors chosen, Elam Fisher, Eaton, Ohio, and E. H. Willis, Wellston, Ohio.



Oklahoma

The Oklahoma City (Okla.) Brick & Tile Co. has been incorporated by F. Wells, W. C. Lee, and O. R. Rittenhouse, with a capital of $100,000.

A pressed brick manufacturing plant, with a capacity of 40,000 brick daily, and which will be known as the Bristow (Okla.) Pressed Brick & Tile Co., will be in operation at that point in the very near future, it is rumored. The proposed company will be incorporated with a capital of $25,000, and more than half of the interest will be owned by local parties. It is said that the heaviest stockholder living outside of Bristow will be Sam Allen, of Sapulpa, who operates a brickmaking plant at Henryetta. It is proposed to move Mr. Allen's plant from Henryetta to Bristow. The company will manufacture brick, drain tile, sewer pipe, and well tubing.

Oregon

A lower rate on terra cotta urns, vases, and pots between California points and Portland, Ore., has been approved by the Interstate Commerce Commission.

Pennsylvania

The Hay-Walker Brick Co., Farmers' Bank Building, Pittsburgh, Pa., has filed plans for the erection of a one-story, brick and concrete plant building at Thomas Boulevard and Braddock Avenue, to cost about $78,000.

The Speeceville (Pa.) Brick Manufacturing Co. has reopened its plant, which has been closed since last December, and is now operating at full capacity. An addition has been erected and new machinery installed. Headquarters of the company are in the Kunkel Building, Harrisburg.

The Harbison-Walker Refractories Co., Clearfield, Pa., has recently placed a new wage scale in operation at its local plant, amounting to an increase of about twenty cents per day. This is the second increase during the present year, the first, March 1, being an advance of fifteen cents. The company has also allotted lands for employes' use for gardening.

Because of the impossibility of securing a sufficient supply of fuel and an adequate number of cars in which to ship its product, the Keystone Clay Co., Wilkes Barre, Pa., has been compelled to discontinue the manufacture of paving brick and to remodel its plant to manufacture common brick exclusively. The sale of this product will be entirely local, according to present plans, and it will be distributed by motor trucks entirely. About $10,000 has thus far been spent in re-equipping the plant.

The Conklin-Armstrong Terra Cotta Co., of Philadelphia, Pa., has discontinued its New York (N. Y.) office, formerly located on Fifth Avenue near Thirty-fourth Street, and hereafter all business will be handled direct from Philadelphia. The records of the firm for the past year show that their sales have been largely increased in New York and the surrounding territory, but since the death of Mr. Conklin it was deemed advisable to concentrate the entire office force at the main plant.

South Corolina

The installation of a producer gas system of burning at the plant of the Sumter (S. C.) Brick Works is rapidly nearing completion. Already on this plant, which is the first south of the Ohio River to adopt a producer gas

Logical and Sensible **Bottom Dump Cars**

In a majority of the clay plants the **logical** clay car is the **bottom** dump car.

Why should you employ a car that must be half upset by main force, hammered and racked in order to discharge the load, when by using the Youngstown bottom dump you conserve the life of your cars from three to four times and the elevated track structure is not jarred to pieces?

It's logical, isn't it?

The Youngstown Steel Car Co.
Youngstown, Ohio



Your Fortune For Coal Or Use Canton Shaking Kiln Grates Which?

One of the very prominent refractory men says: "It is simply beyond my comprehension why otherwise good plants still use old methods. We are saving over 25% of our fuel with Cantons, amounting to thousands of dollars each season.

Get our bulletins.



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Atlanta, Ga.

SAY "I SAW IT IN" BRICK AND CLAY RECORD

"SCANDINAVIA"

(Solid Woven Cotton Belt)

is the kind of belt that gets the preference from those clay-products manufacturers who are most particular about knowing the exact cost of operation in every detail.

"Scandinavia" always shows up so well when the manager looks over the cost figures that there never is any question as to the belt that will always have the preference.

"Sandinavia" is the belt for you to use for power transmission—elevating and conveying.

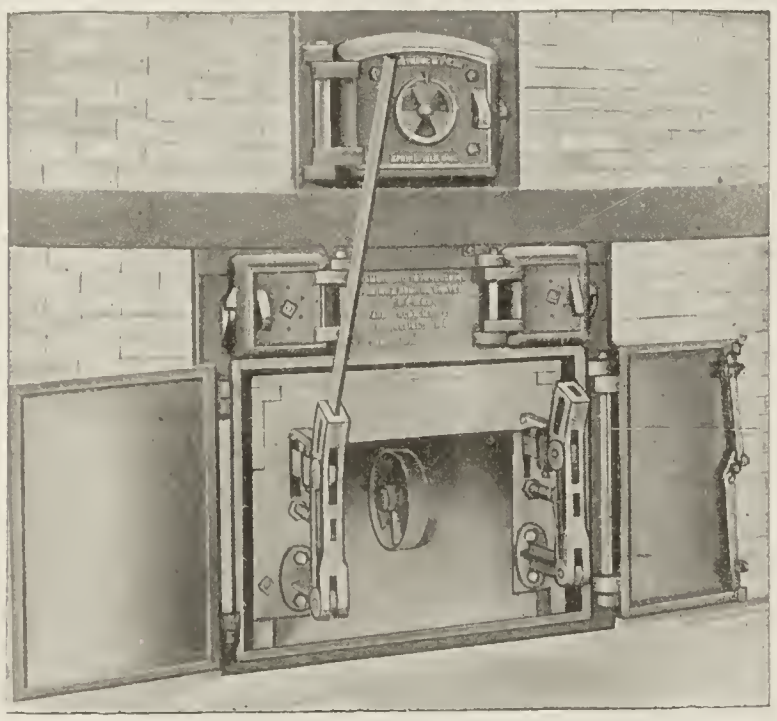
Try it once and you'll be convinced

Scandinavia Belting Co.

106-108 Reade Street, New York

Branches: Atlanta, Boston, Buffalo, Chicago, Cleveland, Easton, Pa., Pittsburgh, San Francisco, Los Angeles, Portland, Ore.

Canada: Federal Engineering Co., Limited, Toronto and Montreal.



Just one movement of the dumping device of the

Standard Interlocking Kiln Grate

entirely cleans the fire—clinkers as thick as six inches are easily handled.

This is only one of many points of superiority that make this the ideal kiln grate for every brick plant.

We install it at our expense—you give it a thoro trial—if it doesn't do all we claim we'll remove it without any cost to you.

Write for details and prices.

The Armstrong Manufacturing Co.

SPRINGFIELD, OHIO

system of burning, one kiln, upon which the installation had been completed, has been fired and great satisfaction expressed over the results obtained, both from the viewpoint of reduced manufacturing costs and the quality of the ware burned. Work has been progressing since the first of the year on the installation of the system, and it is expected that before long the company's entire battery of kilns will be harnessed to the producer.

Virginia

The Abington Co., Inc., was recently incorporated at Alexandria, Va., with a capital of $300,000, for the purpose of manufacturing brick. W. B. Cox, of Washington, Va., is president of the new concern, and Enoch L. White, of the same city, is secretary and treasurer.

Washington

The Washington Brick, Lime & Sewer Pipe Co. reports very good success with the segmental sewer block which it recently began manufacturing.

The assets of the Clay Products Co. of Spokane, Wash., will be sold at a private sale to satisfy creditors, under an order signed on May 16 by Superior Judge Hurn, granting permission to C. C. Koerner, receiver of the company, to make the sale. This company, which was recently thrown into the hands of a receiver on petition of a creditor, operates a pottery plant at Spokane, a brickmaking plant at Sandpoint, and owns clay fields in Stevens County, Ida.

"Our plant is decidedly busy and we need more men," said C. P. Oudin, president of the American Fire Brick Co., of Spokane, Wash., recently. "We expect to make extensions that will cost in the neighborhood of $20,000 as soon as better freight rates are granted to Spokane. We could use about thirty-five more men besides the force we now have employed. In addition to our regular lines we are calcining magnesite from the Stevens County deposits, and are making magnesite and calcium brick used in converters and steel furnaces, and have recently begun a new industry—that of putting iron into magnesite for clarifying steel. We expect to produce about one thousand tons of this material a day." The above interview with the president of the western fire brick company, published in the Spokane "Chronicle," is adequate proof of the fact that expansion is the watchword of the American Fire Brick Co. even at the present time. This company has attained a very enviable position in the refractory industry by its continued prosperity and rapid growth during the past few months.

West Virginia

Shale brick and hollow tile will be manufactured by the Huntington (W. Va.) Clay Products Co., which was recently incorporated with a capital of $100,000.

New York Commons Drop to $9.50

New York builders are grateful to the brick manufacturers and retailers for being among the few dealers in the things necessary to make this world go round to announce reduction in price instead of an increase. Hudson River commons have dropped to $9.50—a cut of fifty cents, and assurances are also given that there is an ample supply and that new brick will be ready in a few days. This information has helped take away a little bit of the sting that undoubtedly exists because of the backward way things have been going in the building market.



POTTERY NOTES

A Resume of the Activities of the Potters and Some Mention of Their Plans for the Future

There is a grave possibility that the year 1917 will rival that of 1916 in the number of strikes and labor difficulties in the domestic pottery industry. While wages have been advanced, yet the workers contend that they have not been favored in this respect as much as those in other industries. Several manufacturers hold the same view, but in the matter of uniform wage lists, all manufacturers are working under the same scales. The workers point out that in the steel industry the selling prices have advanced, and the workers have been given steady increases without requests. In the pottery industry, selling prices have also steadily advanced—and additional advances are in sight—but the rate of wage increase has not kept pace with the selling lists, so it is said.

Workers point out that if the pottery manufacturers had followed the same policy as the United States Steel Corporation in advancing all employes, from the "office boy and laborer up to factory managers," ten or fifteen per cent. straight thru there would have been no labor troubles this year in the industry. The manufacturers, however, have at times advanced certain branches of labor only, and this has created discontent among other branches. Some manufacturers quite agree upon this point, but the trade is acting as a whole in treating with labor. After the manufacturers had agreed to advance certain branches of pottery labor a few weeks ago, the decorators followed with an independent request for an increased wage, and threatened to strike. This was followed by clay shop employes in the Sebring (Ohio) potteries going on strike, and also the warehouse girls in the same plants. In all, the pottery manufacturer this year has had his cup full of troubles.

Scarcity of clay in the pottery district in eastern Ohio and West Virginia is said to be due to the rules of the railroads in reference to the interchange of cars, and the carriers in this respect are guided by the rulings of the Interstate Commerce Commission. It is a hard matter to get empty cars to load at southern clay mines, and movement of these cars after being loaded is very slow. The arrivals of imported English china and ball clay are very low now, but manufacturers note the frequency of ship arrivals of late, and this is taken to indicate that before long shipments of foreign clays will be received. Stocks of clays in all potteries are lower now than ever before. Domestic clay operators maintain that their inability to secure cars is causing their miners and diggers to leave these firms to take work elsewhere. A more favorable supply of empty cars is about all that will relieve the situation.

Employes of the Cook Pottery Co., North Clinton Street, Trenton, N. J., who declared a strike for higher wages on April 1, returned to work, for the most part, on May 17, following a conference with the officers of the company. The men have accepted a wage scale offered by the company, as follows: Large press operators, $3 per day; small press operators, $2.75 per day; large press operators on piece work, $3.75 per day;



A Better Hollow Block

THE EXNER

It is very easy to make, and is a splendid seller, because both the mason and the buyer like it.

The block is handled and laid much more easily than other blocks, and in the wall it has a better appearance.

Write for our license terms and get this block for your own plant.

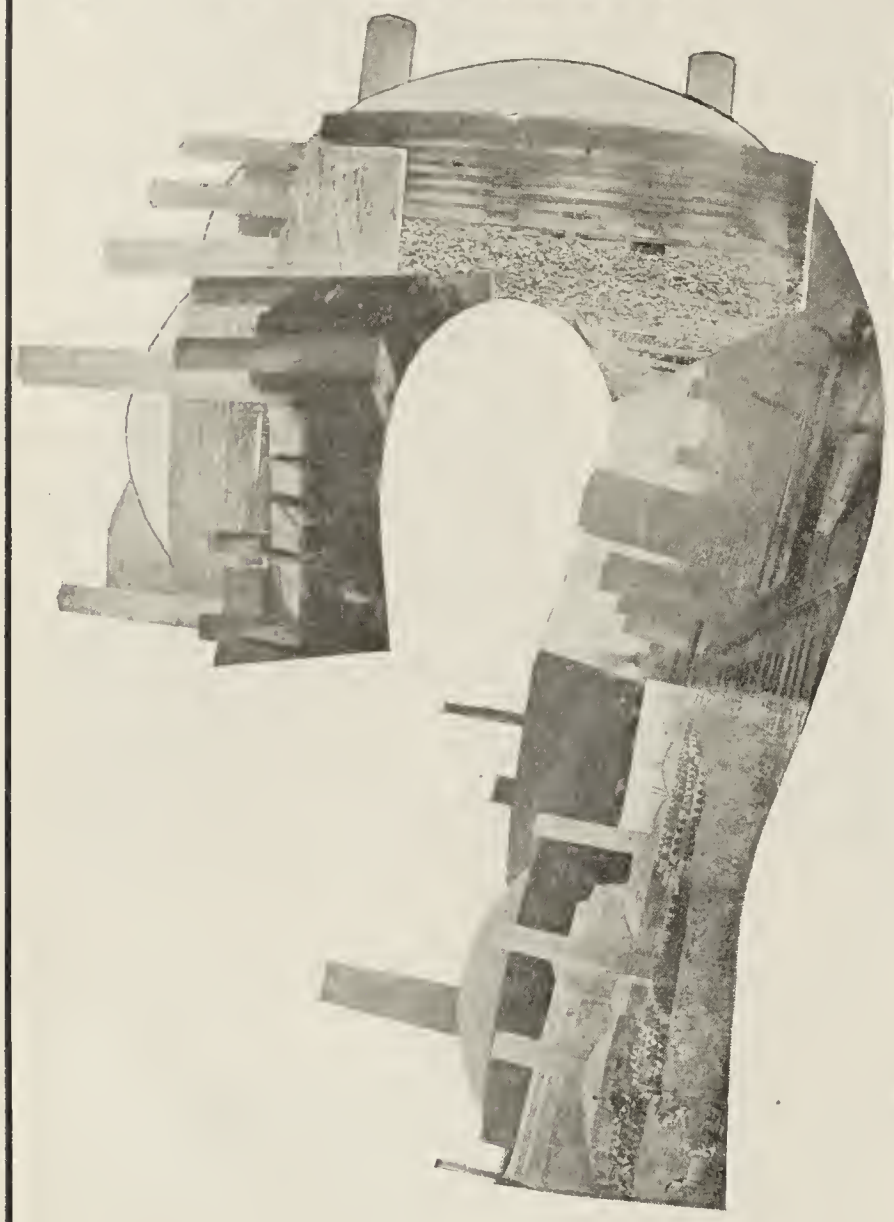
J. E. EXNER

602 Lincoln St. Coffeyville, Kansas

Patented in the U. S. A. and Canada



IF IT'S A QUESTION OF KILNS— WE CAN ANSWER IT





Equally efficient in round, square or rectangular kilns, single or multiple stack type. New Hook Kilns cost less, as a rule, than kilns of other styles. Old kilns can be changed to our type at comparatively small expense.

Give us number and size of your kilns, kind of ware, burning time and fuel consumption. We will estimate cost of installation and saving that can be effected.

Grate Bars, Bands, Lugs, Ventilators, Castings

HOOK PATENT KILN CO.

High and Spring Streets

COLUMBUS, OHIO

small press operators on piece work, $3.50 per day; kilnmen, $2.75 per day; on piece work, $3.50 per day. These rates are operative until October 1, when all wages are to be advanced twenty-five cents per day. The electrical porcelain department of the company has also been affected by the strike.

A special meeting of smaller pottery manufacturers of the eastern Ohio territory is expected to be held at Pittsburgh, Pa., soon for the purpose of making a thoro canvas of the fuel and material situation for the coming fall and winter season. It is pointed out that the pottery manufacturers must revert to the use of coal to eliminate a shortage of fuel during the coming winter, but on top of this comes the question of securing cars for transporting the fuel from the Monongahela Valley mines. It is estimated that the eastern Ohio potteries consume over 1,000 tons of coal a day, or an average of forty car loads daily. This will prove an enormous additional freight traffic for the eastern Ohio district, and arrangements to care for the receipt of the fuel must be made in advance.

The opening of a new $100,000 addition to the Enterprise Pottery Co.'s plant at Trenton, N. J., took place on May 18, in the presence of a large assembly of Trentonians. One of the features of the program was a fife and drum corp reproducing the famous painting "The Spirit of 76." Four hundred pupils of the Columbus school were present and sang patriotic airs. Prosecutor Martin P. Devlin, who formerly worked at the bench in the Enterprise pottery, delivered the principal address. Fourteen of the oldest employes of the pottery marched with the school children. The committee in charge consisted of Edward Connor, chairman, Fred Cooper, John J. Nolan, John E. McKee, Patrick Lyden and James Wiltshire.

J. S. Miller, one of the best known stoneware and art pottery salesmen in the trade, and for some years associated with the Brush, McCoy plant at Zanesville, Ohio, died a few days ago from an attack of pneumonia. Mr. Miller, before he became associated with the Brush, McCoy interests, was formerly a member of the firm of Miller-Myers, of Roseville, Ohio, manufacturers of stoneware. He also had spent some time as the Chicago representative for the A. E. Hull Pottery Co., of Crooksville, Ohio. He was popular with buyers, and enjoyed a large acquaintance among the trade. A wife and one son survive, the latter a well-known singer.

The Imperial Porcelain Co., Trenton, N. J., has purchased the plant of the Newton (Pa.) China Co., which it will operate as a branch factory. A new company to be known as the Newtown Porcelain Works is being organized by Frederic A. Duggan and B. B. Dinsmore, heads of the Imperial company, to conduct the new enterprise, which will be given over to the production of electric porcelain specialties. The Imperial Porcelain Co. has also closed negotiations for the erection of a new plant at Neptune, near Asbury Park, N. J. The proposed structure will cost about $25,000.

Future selling prices of domestic pottery are very uncertain. Manufacturers are not quoting for delivery beyond July 1. Business for fall and next January delivery is being accepted only at the prices that may prevail at that time. Raw materials continue to advance almost daily, and in some instances manufacturers are paying 200 and 300 per cent. more for some materials now than they did two years ago. Buyers do not object to the high



prices, but they are insisting upon delivery, which indicates the merchandise is wanted.

President Marcus Aaron, of the Homer Laughlin China Co., of Newell, W. Va., and a resident of Pittsburgh, Pa., has been made chairman of a committee to co-operate with the food mobilization authorities. Mr. Aaron is also a member of the board of education of Pittsburgh.

The funeral of John F. Harris, retired pottery manufacturer, took place last week at Trenton, N. J. He was formerly one of the best known pottery manufacturers in the New Jersey city.

* * *

GOING *to* MARKET *on the* ROAD *of* LEAST REPAIR

(*Continued from Page* 1149.)

stituted from the beginning to the end, and this must become the solution, securing both convenience and economy.

A truck load of farm commodity must occupy an independent market advantage. If the price asked is not obtained in one market, conditions must be so that it can readily go to the next market.

The crucial thing about a brick road is correct construction methods. The principles and details can be carefully followed.

They are readily understood and easy to carry out.

The above is the text of the beautifully and profusely illustrated booklet, "Going to Market on the 'Road of Least Repair,'" recently published by the National Paving Brick Manufacturers' Association to reach the American farmer. Aimed at that group of America's population which decides the type of pavement to be used upon most of the country's highways, "Going to Market on the 'Road of Least Repair,'" will undoubtedly make a strong appeal. The short, terse statements of the dominant characteristics of the brick paved highway, together with the many illustrations of brick paved roads, will weild a strong influence in driving home the message of better road building to the farmer.

* * *

Shawnee (Ohio) Plant Now in Operation

John R. Turner, general manager of the Ohio State Brick & Stone Co., which has taken over the plant of the Old Shawnee (Ohio) Flash Brick Co., states that the plant is now in operation making a fine grade of flash face brick and fire brick. Mr. Turner, who took charge of the plant on February 15, says that a very heavy demand is being enjoyed for their face brick, many orders being on the books for this product. With the repairs and additions made to the plant since its purchase by the Ohio State Brick & Stone Co., it has been made modern and efficient in every respect and is, according to Mr. Turner, one of the best plants in southern Ohio. The company is now manufacturing nine-inch fire brick and will run on this material for some time to catch up with the orders on hand.

"On-the-Job"
GANDY'S
10th Show-Down

Twenty-Seven Years in a Brick Yard

"Whew-ew-ew, some old belt that, and ready for the scrap heap."

"But not so fast!" says "On-the-Job" Gandy.

"After making a hundred and forty million bricks in twenty-seven years, I get my second wind and a chance to show you how good I really am.

"Twenty-seven long years of steady run, run, run in winter's snow and sleet, in pouring rain and sizzling heat, through streams of steam and acid fumes, in dripping oil and flying grit.

"How do I do it?

"I am the product of scientific investigation—quality materials and workmanship—of curing and seasoning processes that pep me up with a never-slack, never-slip, never-stretch, stick-to-it-or-bust spirit.

"I'm 'On-the-Job' GANDY—the original stitched Cotton Duck Belt, and the service I'm rendering thousands of brickyards, industrial plants, fertilizer works, textile mills and machine shops, I will render you. Order me from your Supply House TODAY, but be sure you get GANDY."

Write Us For Samples and Prices

THE GANDY BELTING CO.

732 W. Pratt St.
BALTIMORE, MD. U. S. A.

NEW YORK BRANCH
36 Warren St.

"ON-THE-JOB" GANDY





The Belden Brick Co. At Their Canton Plant

are using

The Automatic Electric Elevating Platform Truck

It hauls 500 face brick on each load. It moves practically twice as fast as a man, it does not dump its load, it never gets tired, it is always on the job—it takes the place of from five to eight men.

These reasons are sufficient to some clay plant managers —why not to you?

Mr. Belden says that the truck is working very satisfactorily and better results are expected later.

Ask for our data.

The Automatic Transportation Co.
Buffalo, N. Y.



STRAWS *that* SHOW *the* WIND

Brief Paragraphs from Many Points Indicating the Market's Trend in the Light of Building Activity

The record of building operations for the month of April, as shown by the permits issued in 115 principal cities of the United States, reveals the extent of the initial chill to this great industry by reason of the entrance of our country into the European war and the high cost of materials. In the light of all circumstances, the decrease may be regarded as quite moderate. These permits, as reported by the "American Contractor," total $86,100,925, as compared with $94,029,102 for April, 1916, a decrease of eight per cent.

The January statement this year showed an increase of eleven per cent. For February, and again for March, the totals shrank five per cent., when compared with the corresponding month last year. There would naturally be some withholding of applications for building permits with the uncertainties of war effects and the significant feature about the April statement is that the decreasc was not greater than eight per cent.

Of the 115 cities represented in the aggregate, sixty-nine or forty per cent., show comparative gains. The total number of permits issued for April was 29,823, compared with 32,288 for April, 1916, a decrease of eight per cent.

* * *

The stability of the building construction business during January, February, March, and April is shown by the "Financial Chronicle" to be well sustained. A total of $241,871,064 is reported as set aside for building construction in 164 cities outside of New York as against $244,363,953 in the same period in 1916. Including Greater New York's total of $45,214,124 for 1917, $57,912,675 for 1916, and $56,688,840 for 1915, the exhibit for the whole country shows $287,095,188, as against $302,276,628 a year ago and $261,294,065 in 1915. Canada has been in the war longer than the United States, but reports from there indicate a revival of building construction which is encouraging to students of the situation here.

In a country of approximately 100,000,000 people, undertaking building operations totaling last year $1,125,356,045, a mere drop of $15,000,000 in construction can easily be charged off to deference of plans for steel skeleton buildings owing to slow deliveries. At the same time it must not be forgotten that the diminished projected construction for the first quarter of 1917 is, by these figures, shown to be $26,000,000 in excess of the total for the same number of cities in 1915, when the country was not at war and when it was not expecting to float stupendous war loans.

* * *

Building operations in Cleveland, Ohio, are, according to authentic reports, continuing to grow somewhat active, notwithstanding the advanced cost of material. Cleveland attributes the fact that the volume of building in Detroit so far exceeded its own to the disastrous effects of the labor lockout from which it has suffered, and it contends that the need for building in Cleveland is no less urgent. Now that

SAY "I SAW IT IN" BRICK AND CLAY RECORD

the shackles of labor difficulties have been removed it looks forward to a spurt in building which will make a very favorable comparison with that of other cities in the same territory.

There was a substantial increase in the value of building permits issued in Rochester, N. Y., during the week ending May 19 over that of the preceding week, but a loss of fifty-five per cent. from the figures for the same period in 1916 is noted.

Altho the total value of building in Newark, N. J., for the week ending May 25 amounts to $109,633, as compared with $243,305 for the same period of last year, and the number of permits for this period number fifty-nine, as against eighty-three last year, the total for that portion of May ending on the 25th has already passed the million dollar mark, being $1,018,530, which compares very favorably with the $815,368 worth of work projected during the entire month of May, 1916.

A tremendous inflation of the value of building in Atlantic City, N. J., for April, 1917, as compared with that of April, 1916, is revealed in the report of the building department which shows a total for April in the present year to be $1,204,213, while in 1916 it amounted to $210,535.

Extremely inclement weather during virtually the entire month of May in and around Cincinnati served to cut down building operations materially, as on many days work was impossible. Outdoor work has been seriously hampered during the entire season because of prolonged rain. The volume of work laid out and postponed on account of the weather will mean extreme activity during the entire summer, judging from present indications.

In a record of building operations for April, Detroit stands third among 115 cities with a total of $5,824,705 and a larger percentage of gain than any other of the leading cities.

The city of Greenville, S. C., estimates that before the year of 1917 has passed, approximately $1,600,000 will have been spent in the construction of industrial and mercantile structure and dwellings, judging from the start that has already been made and from the estimates of costs furnished by architects, contractors, and union state men in the city. This prediction augurs well for building activity in the south for the coming summer.

Exceedingly optimistic reports emanate from Kansas City, Mo. Month by month Kansas City is placing its figures for 1917 building operations above those of last year and attributes this continued expansion, first, to the need for more industrial, office and residential structures, and, second, to the appreciativeness of its citizens of the conclusions of keen observers who have pointed out that the present cost of building will not be appreciably reduced for a period of at least five years, and possibly not before a decade has passed Already, in the first four months of 1917 an increase of nearly $1,000,000 in building operations has been noted, the figures for 1917 and 1916 being $4,286,140 and $3,355,904, respectively. This is an increase of about twenty-eight per cent. and reflects considerable activity in the Missouri city.

Producer Gas *for* Brick Burning

Its uniform quality must be assured.

It must be supplied in quantities to meet the varying demands of this particular service.

To insure these results install

The R. D. Wood Gas Producer

A size to suit every requirement.

For the small plant—

The hand poked type.

For large installations—

The mechanically stirred producer.

R. D. Wood & Co.

400 Chestnut Street
Philadelphia, Pa.



The Price of Coal

subject to such uncertain conditions as exist at the present time, demands that you keep a watchful eye and an open ear upon this big factor of your operating expense.

The price of coal will not be any lower than it now is, and will undoubtedly go much higher within the next few months, because of the material increase in miner's wages and mining supplies.

THE BLACK DIAMOND

Each weekly issue of THE BLACK DIAMOND treats with conditions as they arise, and tells of the probable bearing they will have upon the future price and supply of coal.

Considering the small cost of but 6c a week ($3.00 a year), THE BLACK DIAMOND is the cheapest, safest and most satisfactory form of fuel insurance a clay-product manufacturer can carry.

Follow the path of live and progressive brick and tile makers everywhere, and become a regular reader and subscriber to THE BLACK DIAMOND,—**for over 30 years the coal trade's leading journal.**

Write now for a sample copy.

THE BLACK DIAMOND

1111 MANHATTAN BLDG.
CHICAGO, ILL.

NEW YORK PHILADELPHIA PITTSBURGH

One of the largest building undertakings under way in this city is the construction of additions to the plant of Montgomery Ward & Co., which will cost approximately $1,500,000.

Building operations for the last two weeks of May, in Seattle, Wash., aggregated $776,125, according to the records of the building department of the city, as against $504,365 for all of May of last year, and $670,905 for all of April this year.

Building in California is decidedly on the up-grade, and is marked by a generally stronger undertone. The public is less inclined to fear a general panic as the result of America entering the war, and it begins to look as tho building operations in California and the other Pacific Coast states will use up all of the brick and tile that can be turned out by Pacific Coast plants this year.

Drastic War Measure to Relieve Car Shortage

Manufacturers and shippers thruout the country should be very much interested in the so-called Pomerene car shortage bill which was passed by both houses of congress the latter part of last week. It is expected that this bill will relieve the shortage in freigh tcars. In part, the bill gives the Interstate Commerce Commission the following power:

"Whenever the commission shall be of opinion that necessity exists for immediate action with respect to the supply of use of cars for transportation of property, the commission shall have, and it is hereby given, authority, either upon complaint or upon its own initiative without complaint, at once, if it so orders, without answer or other formal pleading by interested carrier or carriers, and with or without notice, hearing, or the making or filing of a report, according as the commission may determine, to suspend the operation of any or all rules, regulations, or practices then established with respect to car service for such time as may be determined by the commission, and also authority to make such just and reasonable directions with respect to car service during such time as in its opinion will best promote car service in the interest of the public and the commerce of the people."

Southern Tile Association Postpones Meeting

In view of the fact that James T. Howington, president of the Southern Hollow Tile Association, will be in New York at the meeting of the national organization, the meeting of the Southern organization, scheduled to be held in Birmingham, June 7 and 8, has been postponed to June 20 and 21. On the first day the directors will meet and on the second the association will hold its meeting. The permanent headquarters of the association will be established at that time.

Highlands Co. Bids for World's Fair Tract

The sale of a seven-foot vein of fire clay under Forest Park, the site of the St. Louis World's Fair, which now is the city's chief beauty and recreation spot, is being considered by the city officials, following an offer of twenty cents per ton for mining privileges made by A. C. Stuever, president of the Highlands Fire Clay Co. It is estimated that a revenue of $200,000 for the city would be produced by the granting of this mining privilege, but there is some opposition to it, because of the fear that



the removal of so large an amount of clay eighty feet under the surface will be productive of cave-ins that would spoil the beauty of the park. Fears also have been expressed that the removal of the clay will result in the emptying of the lakes in the park. The matter will be brought before the board of aldermen during the next week, in an effort to have an ordinance passed permitting the sale and mining of the clay.

New Jersey Potter Heads War Committee

General Manager A. M. Maddock, of the Thomas Maddock's Sons Co., sanitary pottery manufacturers, of Trenton, N. J., has been made chairman of a special committee of manufacturers of plumbers' supplies, charged with the work of providing sanitary equipment for the camps that will be organized for conscripted soldiers of the United States army, according to a notice appearing in the May 25 issue of "The Anchor," a semi-monthly publication issued for the betterment of the plant and the employes of the Thomas Maddock's Sons Co. The position conferred upon Mr. Maddock carries with it great responsibility, for upon the sanitation of the conscription camps will depend, in a large measure, the health of the soldiers who are to be mobilized in them, and in conferring that responsibility upon Mr. Maddock, the quartermaster general's department of the United States made a signal recognition of his high standing in the sanitary pottery industry. Mr. Maddock will be responsible for the placement and prompt delivery of all government orders for sanitary equipment.

Texas Brickmakers Testify at Rate Hearing

Brick manufacturers from the western, northwestern and central parts of Texas recently gathered at San Antonio to testify at a freight rate hearing held by the Interstate Commerce Commission, for the purpose of making an examination into the Shreveport (La.) freight rate situation. The manufacturers stated that under the new tariff arrangement which went into effect last November they have been unable to successfully compete with other manufacturers from adjoining states and characterize the rates in tariff 2-B as highly discriminatory and unreasonable. Even the Fort Wayne & Denver Railroad, they said, had protested against the application of the differential to western territory, but have been forced by the other lines to acquiesce in the arrangement. It was the contention of the shippers that the differential prevents industrial development in new territory and expands the business of concerns that are able to give the railroads the greatest volume of freight.

"Buy-A-Home" Campaign Postponed

The "Buy-A-Home" campaign which the Louisville (Ky.) Real Estate Exchange members had prepared to conduct in Louisville from June 2 to June 16 has been postponed from those dates to June 16 to 29. This is on account of the fact that during five days of the first named period the Liberty Loan campaign, which has been organized to sell $5,000,000 of the bonds in Louisville, will have the center of the stage. Not only will that be true but the members of the Real Estate Exchange have enlisted almost to a man in this campaign.



WE stood and watched him.

Above and on all sides of us the belts were moving: large and small, vertical and horizontal, quarter-turn and cross belts; each moving swiftly, silently.

There seemed to be thousands! And the Superintendent had told us that this ONE MAN took care of them all. We stood and watched him.

He carried a pail, and a stick wrapped at one end with a cloth bandage. Dipping this into the pail he carefully wiped the excess off upon the edge and laid the stick against the face of a moving belt. As he worked it back and forth we saw a light stain appearing on the pulley face. He was watching this also, for apparently satisfied, he stopped the treatment and went on to the next belt.

So that was all? A dip, a wipe and a few passes back and forth across the belt face. But how long would it last?

"That belt," said the Superintendent, "is now in such fine condition that it will not require any more CLING-SURFACE for a month. It is quite pliable, waterproof and practically oilproof, and what is more important still, it never slips, even under the peak load. You see, it is running very slack—we haven't had to take it up for three years.

"Before I had the shop use CLING-SURFACE we ran all our belts tight, and were having trouble every day. It kept four men busy just taking up belts, and applying belt dressings, but now this one man with the new semi-liquid CLING-SURFACE, treats them all."

That is the NEW way to apply the NEW semi-liquid "easy-to-use" CLING-SURFACE. It requires no heating in ordinary temperatures. It results in a money saving more than covering the cost of the CLING-SURFACE required.

The plan 10,000 firms have found successful will interest you. Let us send it *free*, with any special service your conditions may require.

Remember, use CLING-SURFACE and you won't need belt dressings.



CLING-SURFACE CO.
1029 Niagara Street
Buffalo New York U S A

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SAY "I SAW IT IN" BRICK AND CLAY RECORD

Dependability is what owners demand in the trucks they buy.

And truck dependability is possible only with reliable frame, axles, springs, brakes, motor and other structural parts.

In KisselKar Trucks brick and clay owners find that the Kissel built-in quality gives an unusual durability seldom found in motor trucks.

The Kissel-built engine is power insurance for every grade—the perfected worm drive rear axle is traction insurance on every road, while the other Kissel mechanical superiorities and features are insurance of dependability under all road conditions.

More KisselKar Trucks are now being used in the brick and clay business than ever before. Let us send you data and information on how they are making good for other brick and clay owners in all parts of the country.

Kissel Motor Car Company

Hartford, Wis., U. S. A.

The matchless Kissel-built motor, and perfected worm drive rear axle are guaranteed with every KisselKar Truck.

KisselKar Truck branches, display rooms and service stations in all principal cities and towns.

Five sizes—from the Light Delivery up. Chassis prices $1085 to $3750.

KISSELKAR TRUCKS

MACHINERY *and* EQUIPMENT

Descriptions of Machinery and Accessories and Detailed Announcements that Our Advertisers Believe will Interest Our Readers

The Hill Clutch Factory

The accompanying illustration of the plant of the Hill Clutch Co., Cleveland, Ohio, should be of interest to the readers of "Brick and Clay Record," as this company is closely identified with the clayworking industry on account of the extensive use of Hill Collar Oiling Bearings and Smith Type Hill friction clutches in the brick plants of this country and Canada.

The factory is located on the west side of Cleveland, on the main line of the New York Central Railroad and overlooks Lake Erie, which can be seen in the illustration.

In addition to Hill Collar Oiling Bearings and Friction Clutches, they manufacture a complete line of power transmission machinery, including American System Rope Drives. There is also a department devoted to the manufacture of special machinery. With their own engineering department, pattern works, foundry and machine shop they are well equipped to develop and manufacture all kinds of special machinery for their customers.



Hill Clutch Company's Factory

Sales Manager Hunter Morrison and Sales Engineer W. W. Collins are well known among managers and superintendents of clayworking plants.

* * *

Electric Drive

There are a myriad of good logical reasons why the clay plant should use electric power wherever possible, but sometimes the most potent reasons are given in letters that tell of successful use on other clay plants.

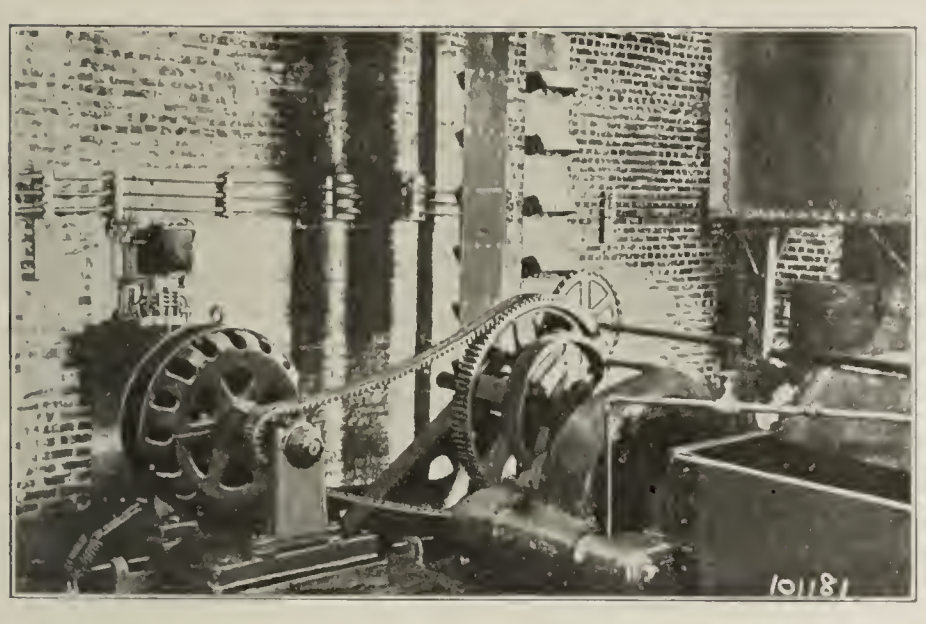
In the following two letters is given a brief synopsis of installation and results obtained with Westinghouse motors and equipment. They tell an interesting story.

"In reply to your favor of the 5th, beg to advise that the electrical equipment as furnished by the Westinghouse Electric & Manufacturing Co. here is very satisfactory. We have used it for a number of years; in fact, it was the original installation on our plant here, and we have not used anything else.

"We are unable to make any contrasts between electric power and steam power on this plant, as we never used, as stated above, anything but electric power here.

"We are running regularly thruout the year, producing an average of 35,000 brick per day on the equipment as installed.

SAY "I SAW IT IN" BRICK AND CLAY RECORD



There Are Many Good Reasons Why the Clay Plant Should Use Electric Power

"It is our judgment that this electrical equipment is the most satisfactory for our use."

Keystone Clay Products Co., Greensburg, Pa.

The second letter is from the Brockway Brick Company, Brockway, N. Y., and reads as follows:

"In reply to your inquiry of January 23, we are using ten *Westinghouse* Two-Phase Induction Motors on our plant, eight of which are 40 h. p., driving eight soft-mud brick machines each with a capacity of 45,000 brick per day; one 50 h. p. driving a pulverizer grinding our waste brick; one 2 h. p. driving a Myers deep well pump which pumps 1,000 gallons per hour from a well 100 ft. deep.

"In using a two-phase system it enables us to start these motors with double throw knife switch, throwing the switch down or in the starting position. It gives a reduced voltage and after the motor gets up to speed the switch is thrown up or to its running position which gives full voltage, which in our case is 440 volts. The brick machine is then started or stopped as the case may be by a friction clutch. This arrangement has proved very satisfactory.

"We also generate our own current, using a 475 k. w. Westinghouse generator which is somewhat larger than our present needs but was put in for future additions of motors. The generator is driven by a leather belt 44 inches wide and a Corliss engine."

Motor Trucks Big Aid in Army Service

"Mobilization of the United States army on the Mexican border and the return of the National Guardsmen to their home states, emphasized the important part the motor truck is playing today in the army," declared H. M. Lee, president of the Duplex Truck Co. of Lansing, Mich.

"The motor truck was found to be almost indispensable on the border. It hauled capacity loads quickly from one camp to another. Equipment was transferred from one place to another in one-fifth the time that would have been required with mule teams.

"From the reports I have received, a Duplex truck went places where mule or horse teams could not have ventured —and it carried capacity loads thruout the nine months it was on the border. It hauled hundreds of tons of provisions, baggage and equipment for the soldiers and often was on the job day and night.

"Again the importance of the motor truck was emphasized when the two Lansing batteries of field artillery returned from the border. Thirty trucks transferred the tons of baggage and equipment from the railroad to the artillery armory—and the trucks reached the armory with the National Guardsmen. It was not necessary to wait for baggage or equipment. Everything arrived on schedule time with the soldiers.

"Few realize the great amount of baggage and equipment required by our soldiers, but it was shown that there was a truck load for every eight or nine returning artillerymen. It is important that when such equipment is to be transferred

One Of The Best Testimonials We Ever Had—From A Well Known Plant Using The

BUCKEYE CLAY DIGGER

Excerpts from a letter of the
Haeger Brick & Tile Co.
Dundee, Illinois

The Buckeye Clay Digger—"has given us most satisfactory service, and has been a most important factor in improving the quality of our tile."

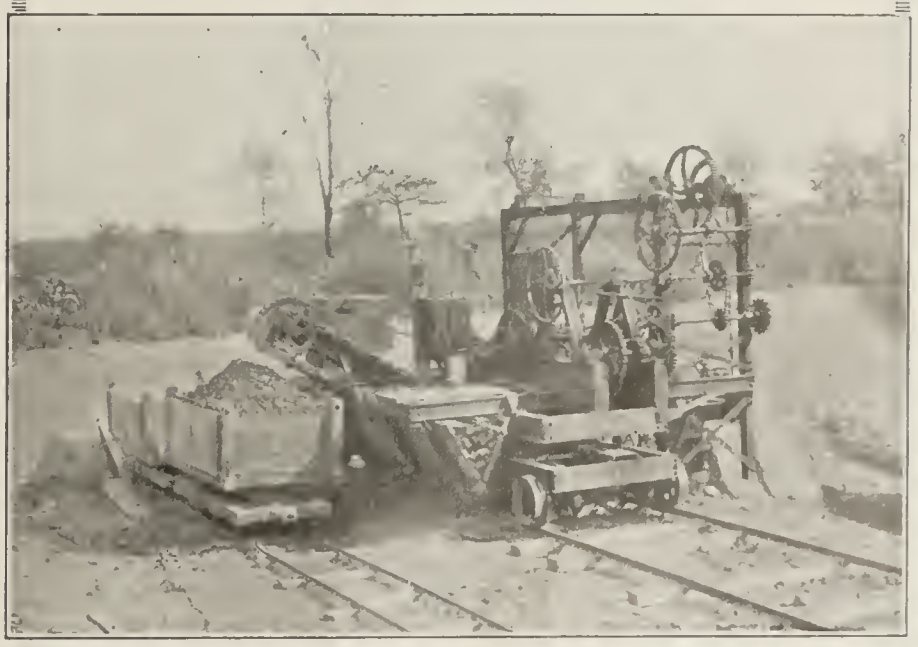
"In digging, the clay is broken up into fine pieces and assists greatly in obtaining a thoro mixture."

"You are welcome to use our name in this connection if you wish."

Haeger Brick & Tile Co.

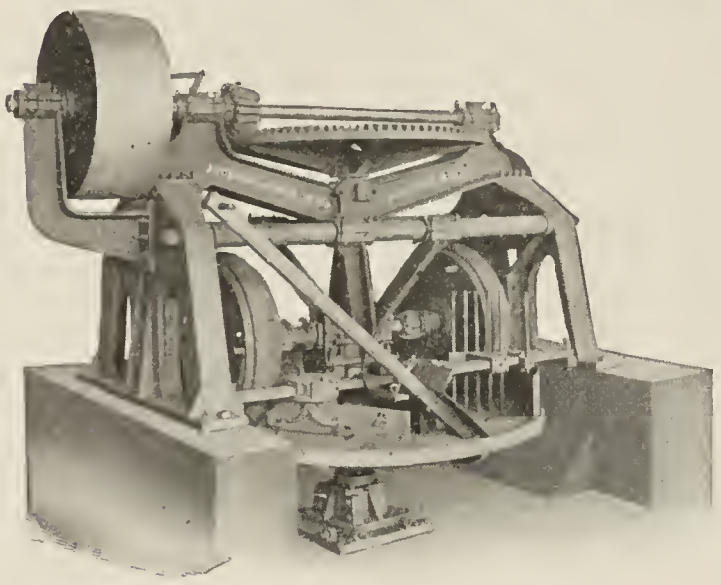
It costs less, it operates for less than other mechanical diggers—in all cases. In the majority of cases it saves men. It may be the "best in the world" in your case.

THE BUCKEYE TRACTION DITCHER COMPANY
FINDLAY **OHIO**



SAY "I SAW IT IN" BRICK AND CLAY RECORD

PANS
WET or DRY



Because they are built rugged and substantial, they give the least trouble.

They weigh 40,000 pounds, and every ounce of it is used to advantage.

The bearings are large and correctly placed. The step is adjustable and accessible.

Extra heavy mullers, wearing plates of hard white iron.

They are the best that money can buy.

Jackson & Church Co.

Saginaw, Mich.

Builders of a complete line of Sand-Lime Brick Machinery, Boilers, Rotary Dryers and Kilns, Etc.



Duplex Truck Hauling Trailers and Artillery Caissons

from point to point that it should go with the soldiers—that there should be no delay. The motor truck seems to have solved this problem."

The accompanying photograph shows a Duplex truck after it had pulled two trailers and 16 artillery caissons—a total load of over 20 tons—several miles over the streets of Lansing.

* * *

Remove That Boiler Scale

Boiler scale is a nuisance that every clay plant is afflicted with, if steam power is used; or, in other words, every steam boiler is a producer of scale.

The Illinois Boiler Cleaning Compound Co. have solved this problem for many users of steam power, and testimonials show that the ability of this compound to keep the boiler free from scale, or to remove it after its formation, is very remarkable. Local conditions of water have not presented in any case obstacles that have hindered its success in removing scale.

The compound is prepared in either liquid or powdered form, and the boiler is treated but once each month, being blown out occasionally as is usual to remove sludge. One small package of the compound will keep a 50 h. p. unit free from scale.

If you use boilers you are troubled with scale, and therefore should try the compound. It may save explosions and blow outs, which rarely occur without injury or loss of life among employes.

In addition, the clean sheets and tubes in a clean boiler absorb a far greater portion of the heat generated in the furnaces, with the net result that a greater or an equal amount of steam pressure is secured at a much smaller expenditure of fuel.

The Illinois compound is guaranteed absolutely on a basis of "it must work, or no pay," and a trial package will be sent on this basis upon request to the Illinois Boiler Cleaning Compound Co., 127 N. Dearborn street, Chicago, Ill.

* * *

The Walter A. Zelnicker Supply Co., St. Louis, Mo., and allied companies, have secured the services of Charles H. Trapp, who is to act as confidential secretary to Mr. Zelnicker, the president. Mr. Trapp was formerly associated with James Stewart & Co. in St. Louis, Denver and Idaho, and lately with Terrell Croft, consulting electrical engineer, St. Louis, Mo.

* * *

M. F. McWilliams of 925 Sheridan avenue, Detroit, Mich., has been appointed district representative in Detroit for the distribution of the Electromobile Industrial Trucks and Tractors manufactured by Orenstein-Arthur Koppel Co., of Koppel, Pa.

* * *

The May Bulletin of the Walter A. Zelnicker Supply Co., St. Louis, Mo., contains a list of considerable equipment used by clay-products manufacturers. They want to send you a copy.



JUN 7 1917

BRICK and CLAY RECORD

DIRT and GRIT

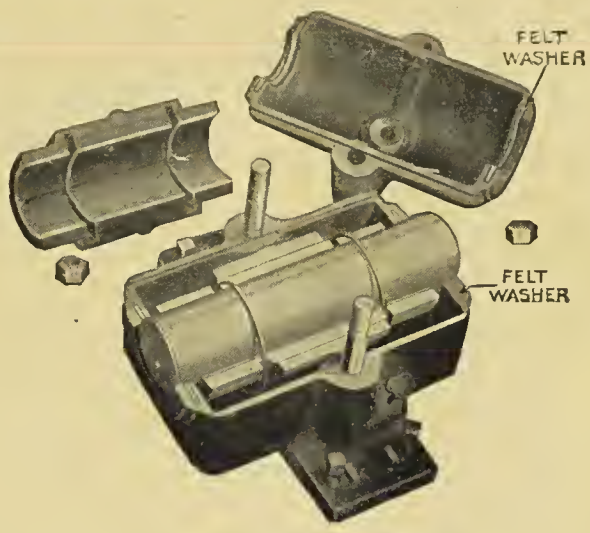
—they are a constant menace to the efficiency of Fans used in Clay Plant Work. They will work their way into the bearings (if it is possible), and trouble results.

CLARAGE
KALAMAZOO
Multiblade Fans

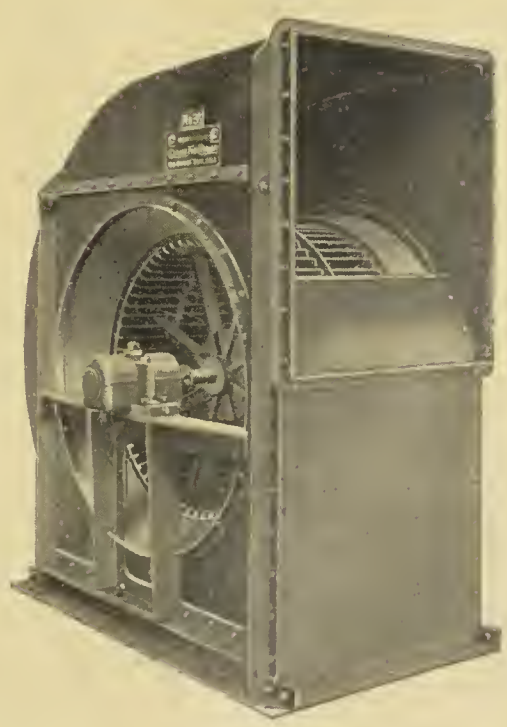
are insured against this waste of power. They are all equipped with the Clarage Special Bearings. These Bearings are entirely enclosed, dust proof (protected by felt washers), run in oil, and are self aligning, which reduces friction (or wear) to a minimum.

That's why there is so much satisfaction among Clay Plant Managers who use Clarage Fans.

We welcome your inquiries—Tell us your requirements.



The Clarage Fan Bearing Open for Inspection



CLARAGE FAN COMPANY.
HEATING, VENTILATING & DRYING ENGINEERS.
KALAMAZOO—MICHIGAN—U. S. A.

Vol. L, No. 12 Chicago June 5, 1917

WELLER MADE CHICAGO

Do You Have to Elevate Clay?

—If you do, there is nothing better than our standard

Stone and Ore Elevators

(Described in Bulletin No. 32)

We make them in standard sizes from 40 to 500 cubic yards per hour.

Complete units, knocked down, all ready to be quickly assembled by you.



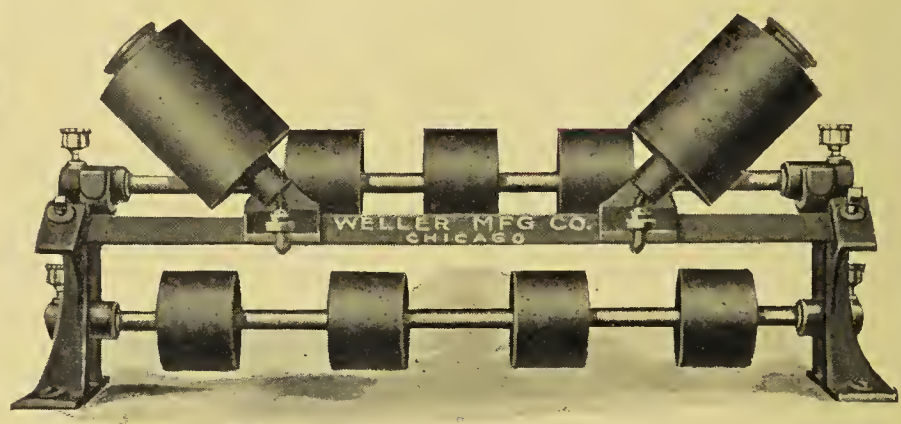


Steel Buckets

48 inches wide; 24-inch pitch; 18-inch projection.

There is ***positively*** no better type of Belt Conveyor Idler on the market than this old style, tried and proven type.

We build them in sizes 16 to 42 inches wide, and can give you everything to go with them.



We Know How to and Do Build the Best

Elevating, Conveying and Transmission Machinery

WELLER MFG. CO., CHICAGO

1820-1856 North Kostner Avenue

SAY I SAW IT IN BRICK AND CLAY RECORD

Your Guarantee For Satisfactory Service

Trautwein
DRYERS

417 So. Dearborn St.
Chicago

BURNING KILNS

DESIGNED AND BUILT BY EXPERTS IS OUR SPECIALTY

Let Us Send You Our Literature

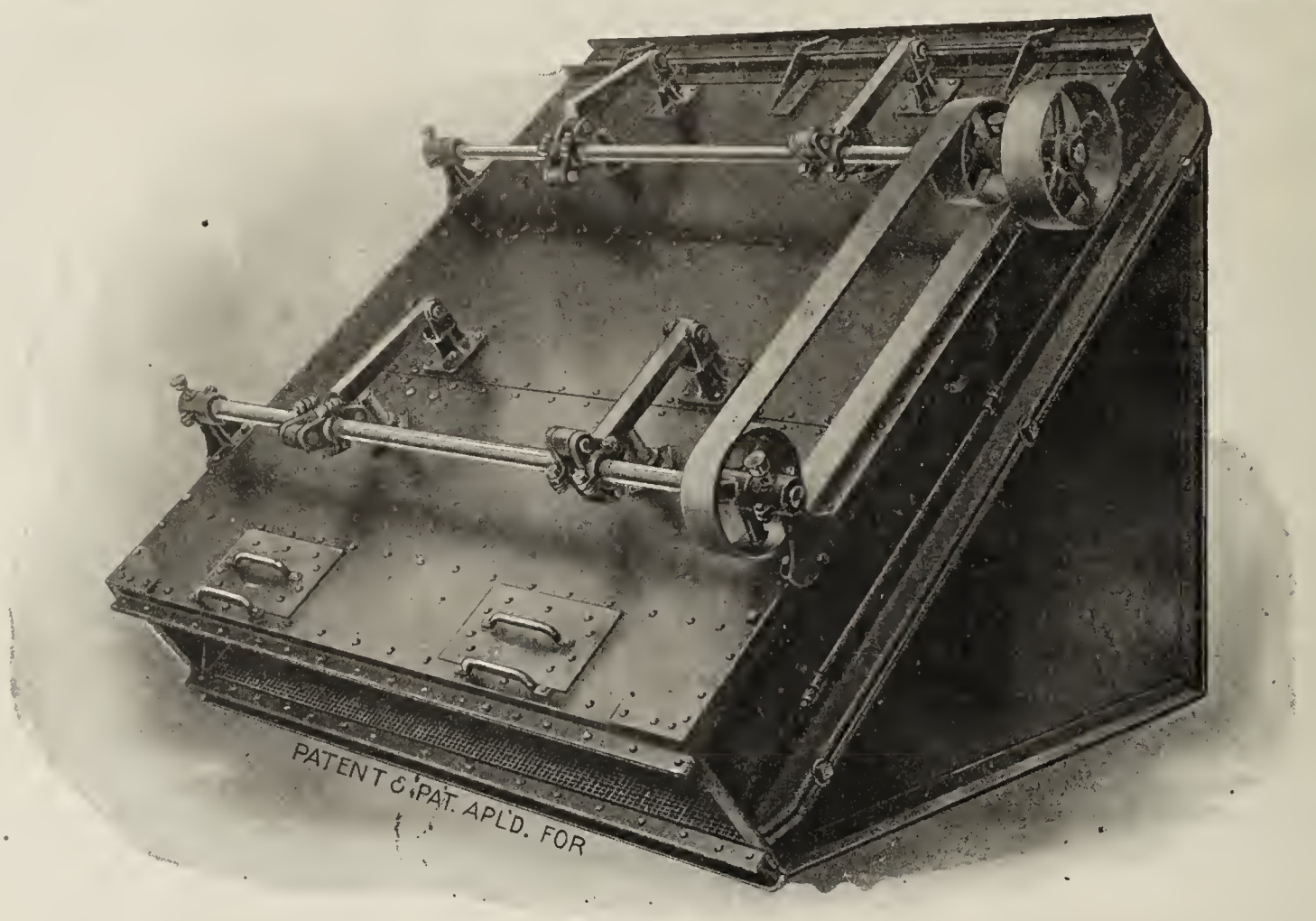
Claude Smith Company

Kiln Builders

Plymouth Building, Chicago, Ill.



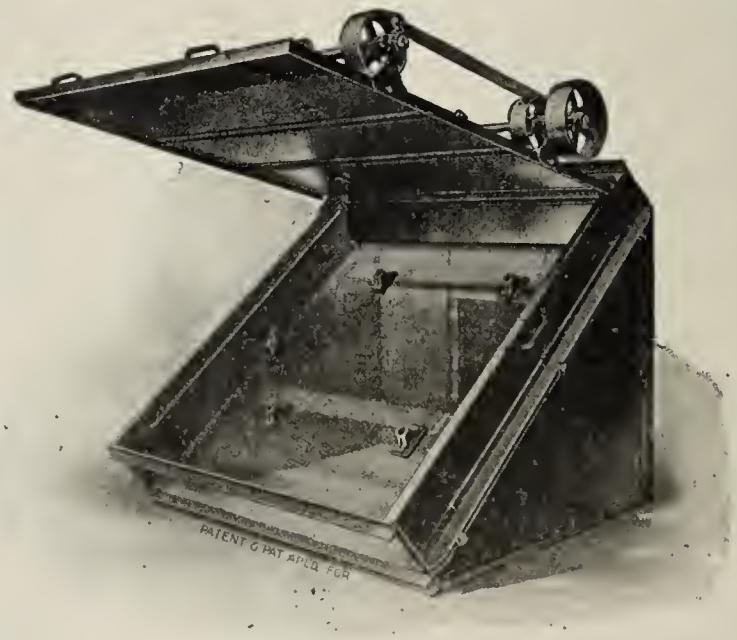
STURTEVANT
NEWAYGO CLAY SCREENS



Produce an accurate product through a square mesh wire cloth, no slivers or coarse particles can pass its surface and spoil the uniformity of a high grade brick.

DIFFICULT TO CLOG

Because:—The screen surface is square mesh wire cloth which is mechanically rapidly vibrated, not shaken or bumped by eccentrics, but tapped by hundreds of little hammer blows upon its re-enforced surface, thus preventing anything from wedging or sticking in its meshes. The screen wire is stretched taut and held taut to make this continuous and rapid vibration possible.



It is a well known fact that wire cloth set at a 45 degree angle produces a product twice as fine as a flat screen of the same mesh, therefore a 6-mesh screen cloth on the Newaygo gives an accurate 12-mesh output. Large openings are difficult to clog and open meshes mean large capacity. Heavy wire used with coarse meshes is durable.

Newaygo Screens are rapidly replacing the piano wire and slotted screen types.

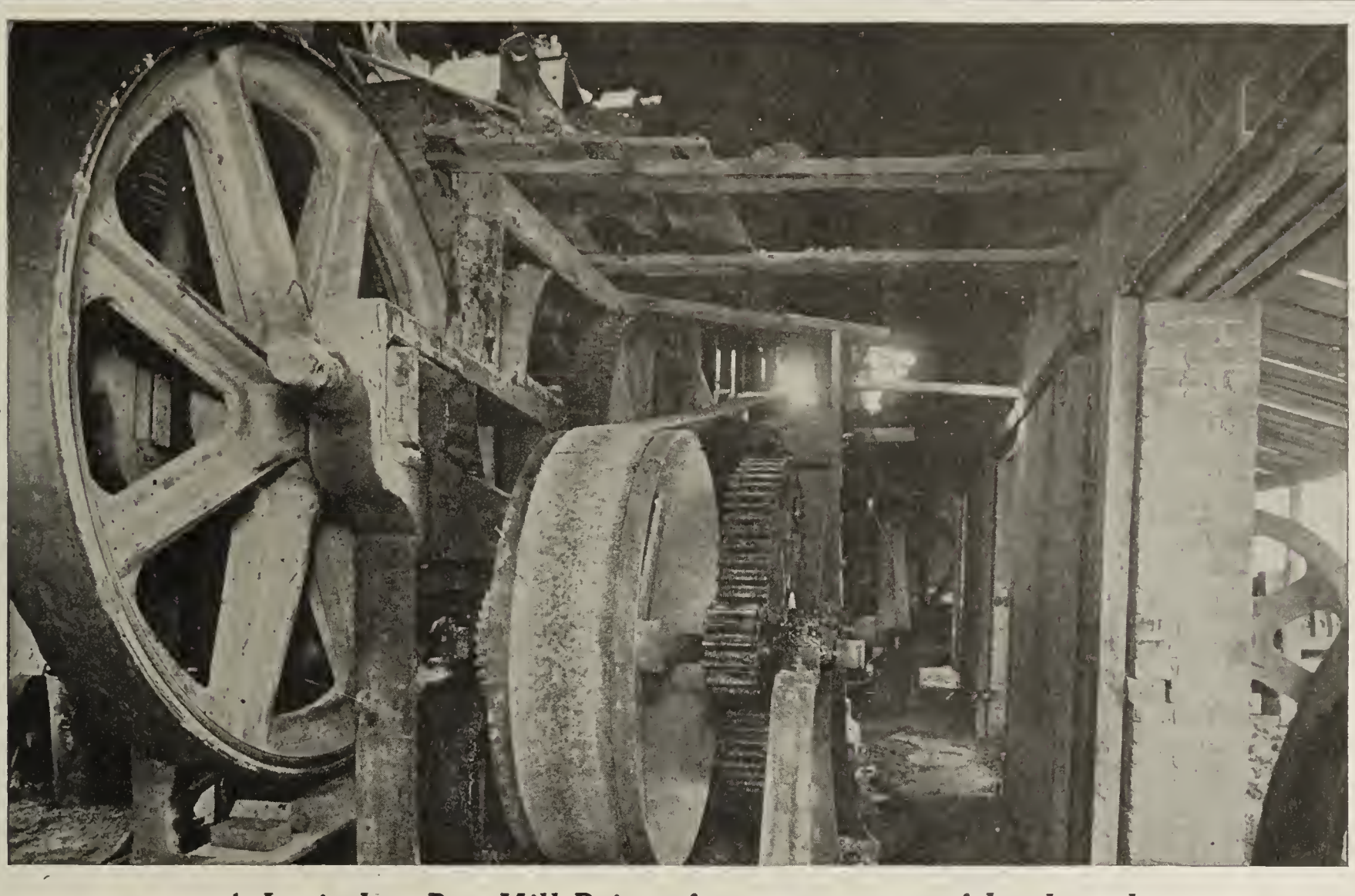
Used by many large Brick Manufacturers.

Built in several models and sizes.

Send for Catalogue 77E.

STURTEVANT MILL CO., BOSTON, MASS.





A Leviathan Pug Mill Drive after seven years of hard work —It looks good for seven more

A PUG mill drive isn't usually a particularly difficult one nor especially hard on a belt—so the fact that this Leviathan is still on the job after seven years and apparently good for as many more is not the outstanding feature.

The main thing is rather the *kind* of service it has given. Any belt that runs seven years without takeup, without stretch or slip, and with practically no dressing, is certainly a profit maker for its owner.

There are a lot of belts that can be nursed along to a ripe old age, but the work and worry in such cases cost more than the belts themselves.

It is day after day dependability that has made a reputation for Leviathan and Anaconda.

If yours is one of the few brick plants that do not use them, real belt satisfaction is still coming to you.

Our new catalog is yours for the asking.

LEVIATHAN AND ANACONDA BELTS

for Transmission, Conveying and Elevating

MAIN BELTING COMPANY
PHILADELPHIA

New York Chicago Pittsburgh San Francisco

CHARLES PURDEN Birmingham, England
THE M. METT ENGINEERING CO., Petrograd, Russia
WILLIAM A. CAMPBELL, Havana, Cuba
MAIN BELTING CO. OF CANADA LTD. Montreal, Toronto
ADOLPH GRANDJEAN, 211 Rue Lafayette, Paris
HONOLULU IRON WORKS CO., Honolulu

LEVIATHAN AND ANACONDA ELEVATING TRANSMITTING CONVEYING BELTING



KILNS DRYER

Producer Gas Fired

It has been demonstrated so many times that our system is all that we claim for it, that today we are rushed with queries and requests for investigation at the plant in question.

Our confidence in the

Underwood Producer Gas Burning System

(Patented)

has been stamped "Justifiable" by demonstration, not on one or two or three plants but on scores, situated in every geographical location in the U. S. A., utilizing every kind of coal, all kinds of labor, burning every kind of clay, made up into every kind of ware, in all sorts of periodical kilns.

We have confronted every variable, **every difficulty, every deep seated prejudice, and we have mastered them all.**

The Underwood Producer Gas Burning System (patented) stands today a success, producing all and more than we claim for it

And Our Claims Are Big.

It follows as a logical sequence that if our method of applying producer gas is a success on kilns, then it should also be a success on Dryers. In actual installation as well as in theory

The Meco Producer Gas Fired Dryer

is another big economizer.

In labor saving, in fuel saving and in its ability to supply a uniform flow of heat the system is as much of a practical success on dryers as is the Underwood System on kilns.

Write us your letter today, don't stand back, demand information for it means money in your pocket.

The Manufacturers Equipment Co.

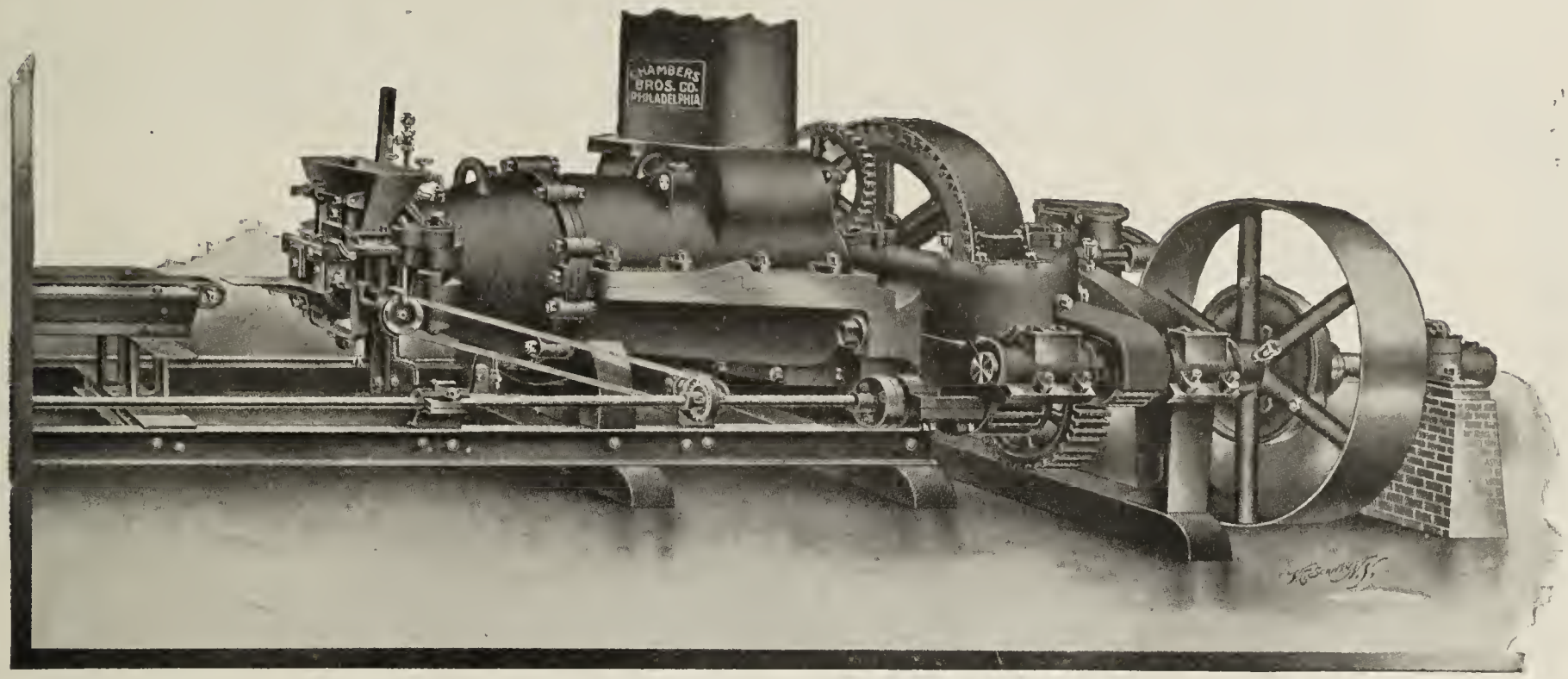
Dayton, Ohio, U. S. A.

Selling representative for J. C. STEELE & SONS, Statesville, N. C., for their complete line of Clayworking Machinery.

Our Western Agent, Geo. H. Smith
507 Reliance Bldg., Kansas City, Mo.



Clay Working Machinery of Good Quality



Auger Machines for Side-Cut and End-Cut Processes

Automatic cutters, both single and double stream. No. 10 multiple cutter for face brick. Rotary cutter No. 5, improved and developed in connection with the requirements for **fire brick** and **furnace block work.**

Reliable Single and Double Shaft Mixing and Pugging Machines

The No. 4 Keystone Repress for 20-Inch Block

is usable for smaller sizes and for shapes

Among the purchasers of "Keystone Represses" are:

General Refractories Co. (four plants); The Kentucky Fire Brick Co.; Ashland Fire Brick Co.; Chas. Taylor Sons Co.; A. P. Green Fire Brick Co.; Winslow & Co.; The Sayre & Fisher Co.; Joseph Oschwald; The Cherokee Brick Co.; Fulton Brick Works; Kier Fire Brick Co.; Carlyle Paving Brick Co.; C. & W. Shiel of New Zealand; Arthur Krug, Brazil.

Chambers Brothers Company

PHILADELPHIA, PA.

North Fifty-Second Street, Corner of Media Street





$5.00 COAL AT

SHOULD INTE

MR. BUILDING BRICK AND

Down Draft Kilns Burning Building Brick at
to 1000 Pounds of

Producer Gas Fired Continuous Tunnel Kilns Are Burning
to 320 Pounds of Fuel

THE EQUIVALENT OF

Do You Realize that the Saving in Fuel and Labor in a
the Entire Original Installation

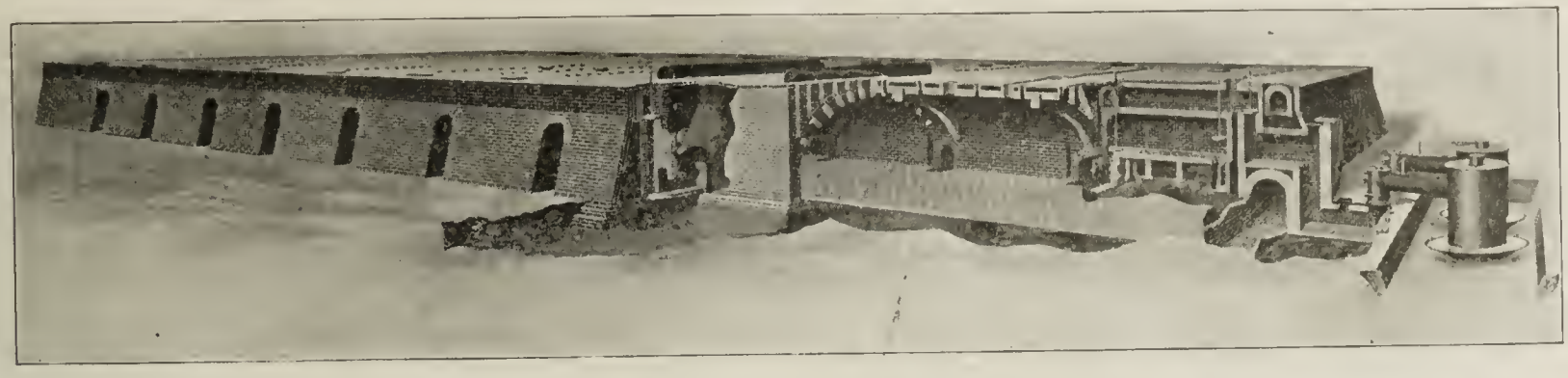
WHAT OTHER INV
20 TO 50

Let "International Service"

International Clay

DAYTON,





$1.70 PER TON

ST YOU,

HOLLOW WARE MANUFACTURER

1800° F. to 1900° F. Are Using from 800 Pounds Coal Per 1000 Brick

Building Brick Under Similar Conditions with 285 Pounds Per Thousand Brick

$1.70 FOR $5.00 COAL

Producer Gas Fired Continuous Tunnel Kiln Should Pay Cost in Two to Four Years?

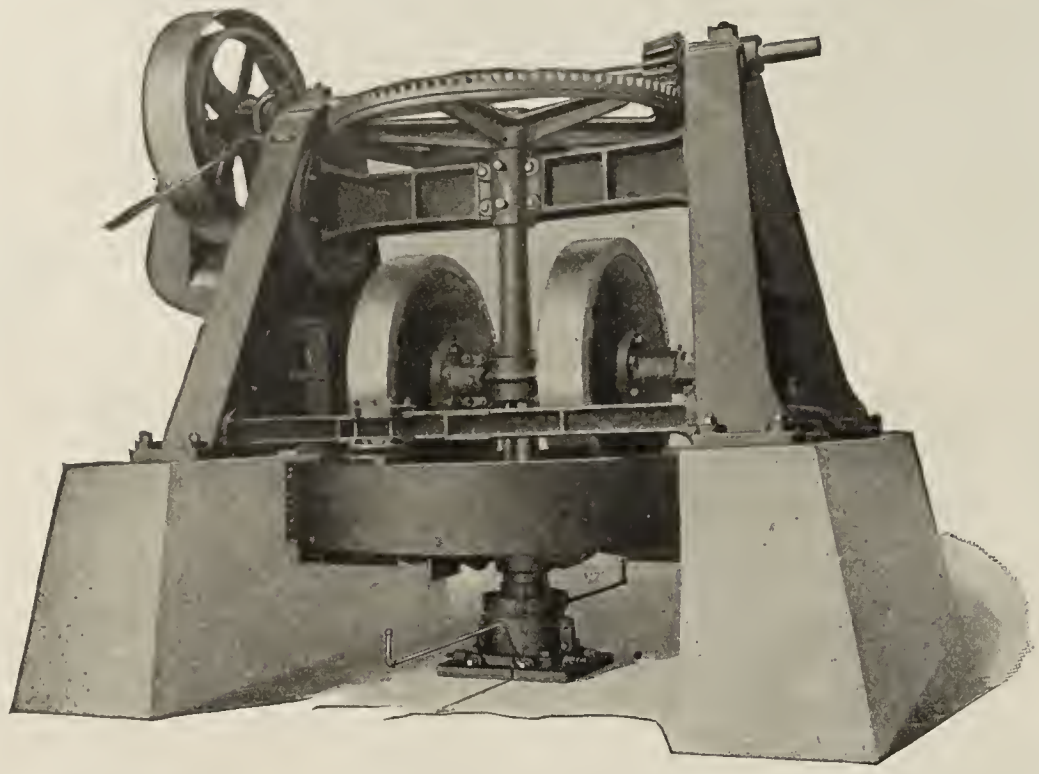
ESTMENT PAYS FROM PER CENT?

Show You the Way

Machinery Co.

OHIO, U. S. A.

SAY I SAW IT IN BRICK AND CLAY RECORD



Ten Foot Dry Pan

Big
Rugged
Powerful

The kind of a machine that can be depended upon to run regularly, with a minimum of repairs, while producing more than its share of ground material.

This Ten Foot Pan and Three Others—All Nine Foot Pans—Formed the Battery

Of all the material ground—the ten foot special ground 41.7% (by actual card record). Almost one-half of the total output of four pans.

It grinds almost three times as much as any one nine foot pan, at an expenditure of approximately 10 to 15% more in power.

It is a source of great satisfaction, has been for two years—and will be for years to come.

The ten foot pan has the same rugged construction as the others of our line.

You cannot afford to be without it any longer.

The Bonnot Company
Canton, Ohio

We Will Standardize Your Plant

Ask How

The Metropolitan Paving Brick Co.
Canton, Ohio

June 23, 1916.

Mr. A. A. Oldham,
The Bonnot Co.,
Canton, Ohio.

Dear Sir:—

Answering your inquiry, wish to advise that special 10-foot Dry Pan furnished us by you has been in operation two years June 5th, 1916, and has been very satisfactory in every respect, due to its massive construction and proper design. The maintenance expense has been very low; in fact, we are still using the original set of muller tires, which is exceptional, considering the material we grind. In a test conducted for a period of over two months, this pan has ground by card record 41.7 per cent of our entire output, and inasmuch as our equipment consists of a battery of three standard 9-foot and this special 10-foot pan, you can readily see that it is carrying much more than its share of the burden.

Some time ago we took some indicator load records of this pan, which shows that horse-power consumed when pan was full under average working conditions varied from 38 to 47 h. p., while our 9-foot pans consumed from 32 to 44 h. p. each.

This is the second one of these pans we have received from you, the other being installed in our Royal Plant, and which is also rendering very satisfactory service.

Yours very truly,
THE METROPOLITAN PAVING BRICK CO.
Imperial Works,
R. B. Keplinger, Supt.



Service Motor Trucks

For seven years Service Motor Trucks have made good in practically every line of business and under every possible condition of work.

Leadership among the Dominant Ten motor trucks is the result of unequaled service records

Write today for Catalogue.

Service Motor Truck Company
Wabash, Indiana.

Buffalo General Electric Company
ELECTRIC BUILDING
BUFFALO, N.Y.

April 5, 1917

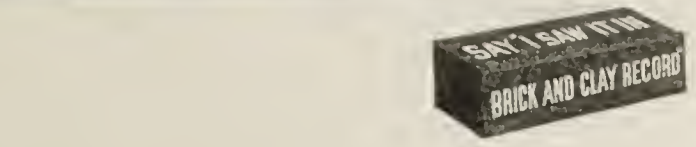
OFFICE OF GENERAL SUPERINTENDENT

Service Motor Truck Company.
Wabash, Ind.

Gentlemen:

We have been operating two of your 3½-ton worm-drive trucks in our Distribution Department for the past six months and have found them entirely satisfactory in every way

Very truly yours,
BUFFALO GENERAL ELECTRIC COMPANY
General Superintendent.



WHITE TRUCKS



Meet the Rush with WHITE TRUCKS

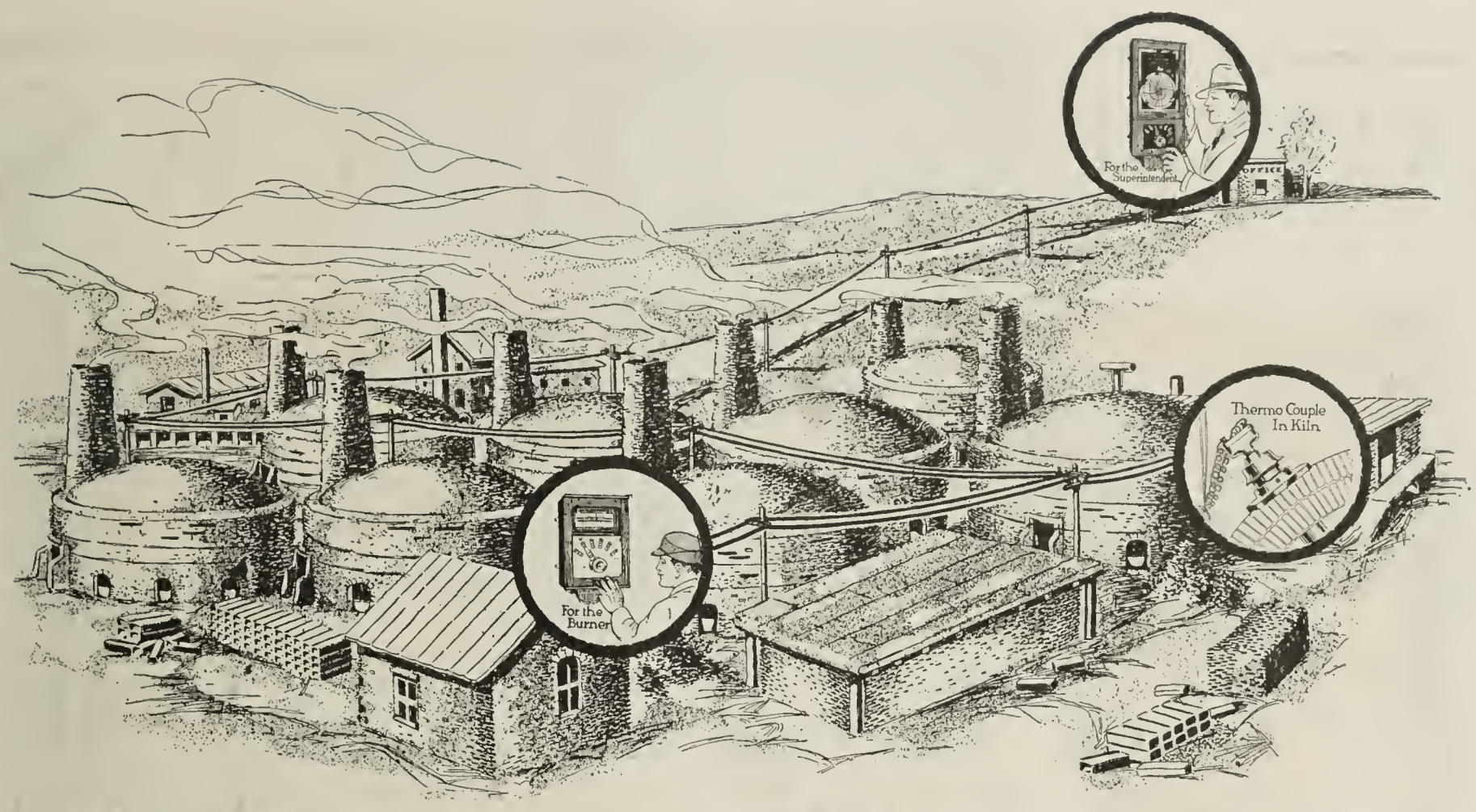
PROMPT delivery is often as much a factor in selling bricks as the price or quality of the material. Especially during the busy season of building construction, contractors will size up your delivery facilities.

The Greenpoint Fire Brick Co. says, "Our White 5-ton Truck has replaced three teams, effecting us a saving in cost of operation and at the same time giving us a wider area of delivery."

This statement reflects the general experience of building material companies who are using White Trucks.

THE WHITE COMPANY
CLEVELAND





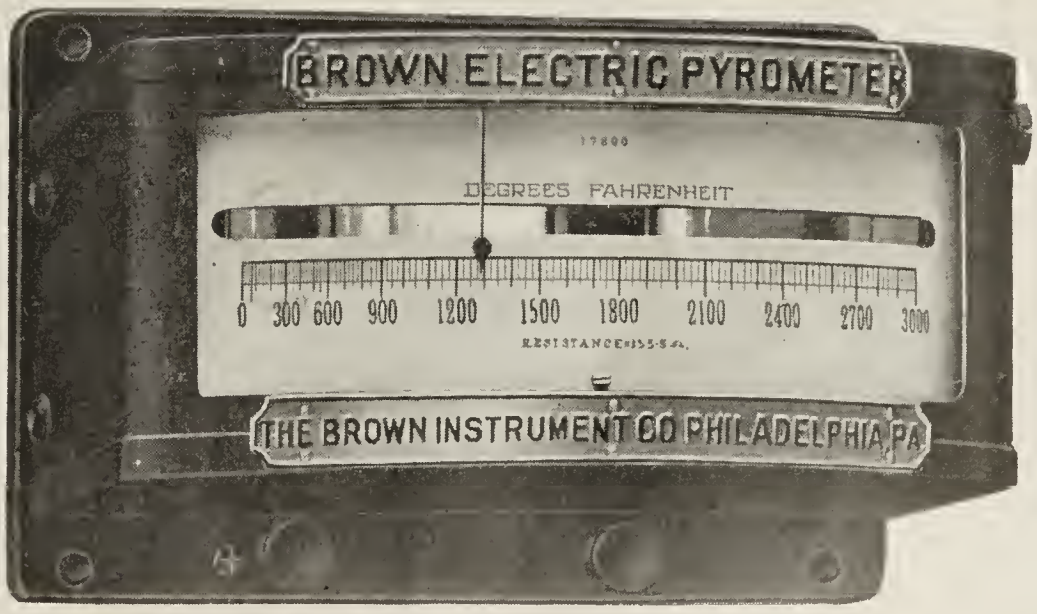
A Mile Away You Can Check Kiln Temperatures

Stand in your Superintendent's office whether this be one block or one mile away from your kilns and you can read every kiln temperature with a Brown Pyrometer by simply turning the switch. Here you can also see from a Brown chart record the temperatures ever since the kilns were fired.

In the heart of your plant your burner watches his Brown Indicator and fires to the heat of each kiln.

What happens? Your burner fires better because he knows kiln temperatures, you check slip-ups and naps with your Brown Recorder, coal is saved, good burns duplicated and you get more ware from every burn.

A Brown equipment pays for itself in your plant long before the first year slips by. Write to the Brown Instrument Co., Philadelphia or one of their offices in New York, Pittsburgh, Detroit or Chicago for full information now.



Brown Pyrometers



DUPLEX
THE ORIGINAL
4 WHEEL DRIVE



Duplex 4-Wheel Drive Opens Every Section of the United States to the Motor Truck

UNFAVORABLE road conditions and lack of roads have often been offered as objections to the motor truck.

But the Duplex—the original 4-Wheel Drive Truck—has overcome all such objections. It is hauling capacity loads—3½ tons—and pulling two or three trailers over logging roads in the Western mountains—

Sand trails in the turpentine States—

Steep hills in New England—

Paths across the Western deserts—

Oil fields in the South and West—

Gravel pits and quarries—

Slippery clay roads and highways with hub-deep mud.

All sections of the country are now open to the motor truck—the Duplex Truck.

A Duplex has replaced and is doing the work of 50-mule teams in the South and West.

It has taken the place of huge tractors, and is hauling 24-foot road graders at almost twice the speed of the tractor.

It is hauling ore from mines that could not be operated before, because it was either too expensive or impractical to transport the metal overland.

It is reducing haulage costs to the absolute minimum for contractors, lumber operators, fuel dealers, manufacturers, oil operators, mining companies, ice dealers, road builders, wholesale grocers, and pit and quarry owners.

And it is performing this heavy haulage work more economically than any other truck built. The severest tests and most thorough demonstrations have conclusively proven this assertion time and again.

If you would lower your haulage costs let us give you facts and figures for your particular business, and send you our descriptive catalog, which explains in detail the many exclusive mechanical features of the Duplex—the truck that hauls capacity loads anywhere.

ADDRESS ALL COMMUNICATIONS TO DEPT. 128

DUPLEX TRUCK COMPANY

LANSING MICHIGAN

SAY I SAW IT IN BRICK AND CLAY RECORD



THE ELECTROMOBILE TRADE MARK INDUSTRIAL TRUCK

Emptying Kiln in one instance actually showed saving of $4,320 per year.

LABOR SAVING
Brick Plant Equipment

Why not let Koppel Brick Plant Transportation Equipment solve your labor shortage?



V Shape Dump Cars

From the shale bed to the shale room—from the cutting machine to the drying room—from the drying room to the kiln and from the kiln to the freight car, Koppel equipment is used with a labor saving almost unbelievable.

At the left is the V-Shaped Dump Car used with Koppel Dinkies to transport the shale.

At the right is the dryer car which handles the brick from the time it leaves the cutting machine or press to the kiln.

The cut at the top shows the Koppel Storage Battery Electromobile emptying the kiln at a well known plant.

Koppel clay and dryer cars—every type and size, Transfer Cars, Portable Track, Steel Ties, Switches, Rails, etc.

Write for Catalog or consult our engineering department today.



Dryer Cars

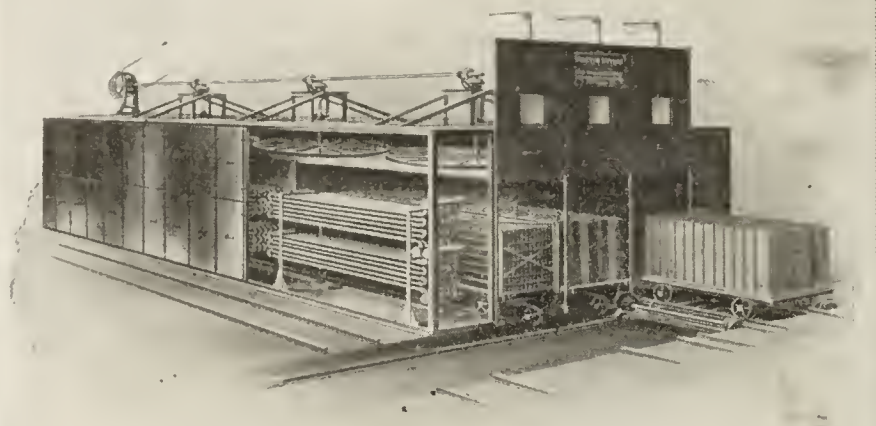
PLANT: KOPPEL, PA.

OAK ORENSTEIN-ARTHUR KOPPEL CO.

Branches all over the world

SALES OFFICES
New York
Pittsburgh
Chicago
San Francisco





Type B-37. "Proctor Dryer," with fans over drying ware.

Will You Give Us A Chance To Prove All We Say About

THE PROCTOR DRYER

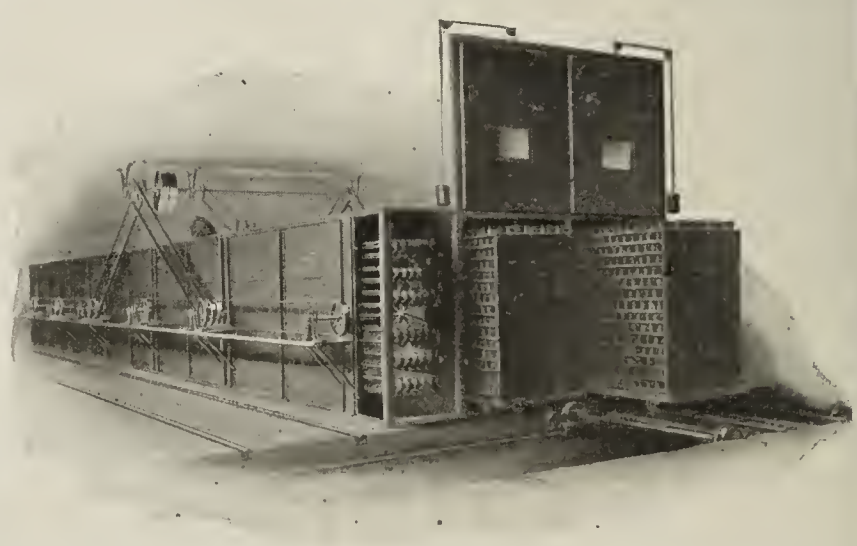
For months now you have been reading and hearing about the performance of this wonderful drying system. We've explained it to you in detail as best we could at this distance. Now—are **you** willing to let one of our expert ceramic engineers come to your plant and make an examination of your clay with a view to giving you our written estimate and guarantee as to what we will do for **you?**

You don't take any risk. Look up our rating and you'll find that we are responsible for the fulfillment of any contract we make. And you surely must know that we are not advertising "just for fun." **We know what we can do**—and we'll do what we say.

The PROCTOR DRYER was not placed on the market generally until it had proven its capabilities in every-day practice. Put your drying problem up to us as other progressive clay products manufacturers are doing.

THE PHILADELPHIA TEXTILE MACHINERY COMPANY

Sixth Street and Tabor Road
Philadelphia
U. S. A.



Type A-14. "Proctor Dryer," showing fans and steam coils at sides of drying ware.





FORD EFFICIENCY

DEMANDS

HERAEUS LE CHATELIER PYROMETERS

In the Plant of the Ford Motor Company in Detroit, where "Low Costs" and "Production" are the predominating cry, you will find the largest installation of pyrometers in the world. The central switchboard and signal panel shown above, accommodate 180 Heraeus Le Chatelier Thermo-couples. They have just put in a larger one which accommodates 480 Heraeus Le Chatelier Thermo-couples.

Knowing the "Ford Policy" of surrounding himself with the best help, whether human or mechanical, his selection of Heraeus Pyrometers is a remarkable tribute to their quality.

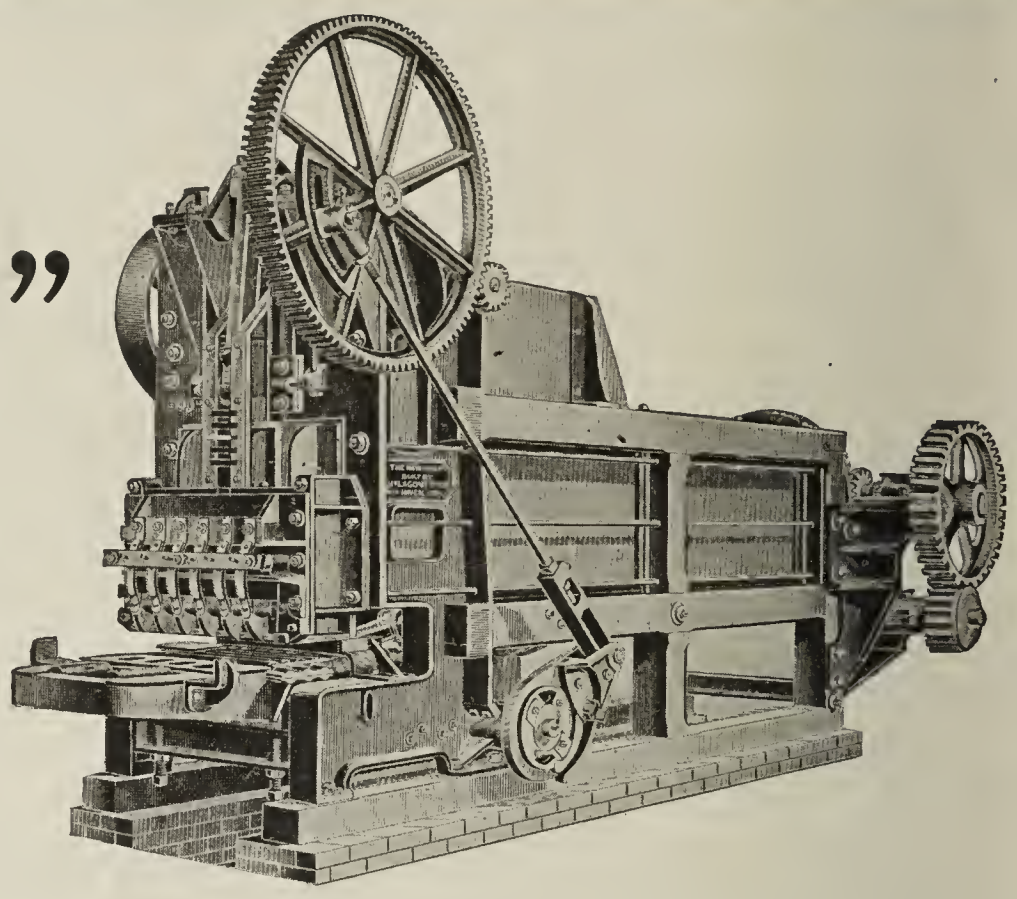
His Experts are among the first in the land. Cannot you safely take advantage of their recommendations, and insure yourself of the "Best Available" by stipulating that Heraeus Le Chatelier Pyrometers be installed in your own plant? They cost but little more and that extra cost is the cheapest insurance you ever bought.

CHARLES ENGELHARD

30 CHURCH ST., NEW YORK



The "New Haven"



One Million Brick Per Month for Twenty Years—Day in and Out—is An Unusual Record—But Not for the "New Haven!"

In constructing the "NEW HAVEN" we have put in *everything* that makes for *efficiency, quality* and *speed* in turning out Brick. That we have succeeded—ask others—those who have used it for over twenty years and are *still* using it with the best of service and unimpaired efficiency.

The "NEW HAVEN" Soft-Mud Brick Machine is a marvel to do the work that it *does*—to last as long as it *does!*—and satisfy as long as it *does!*

While the "NEW HAVEN" is somewhat higher in price than some others, it is remarkably better in *service.* The repairs that you *don't* have to put into the New Haven offset the difference in price over and over—besides you have a Brickmaking Machine that doesn't have to be watched—all it's got to be is operated—and it will turn out profits as fast as it turns out your brick. Write for prices and complete information. Both will please you.

The Eastern Machinery Company

New Haven, Conn.





It's a

"LONGLIFE"

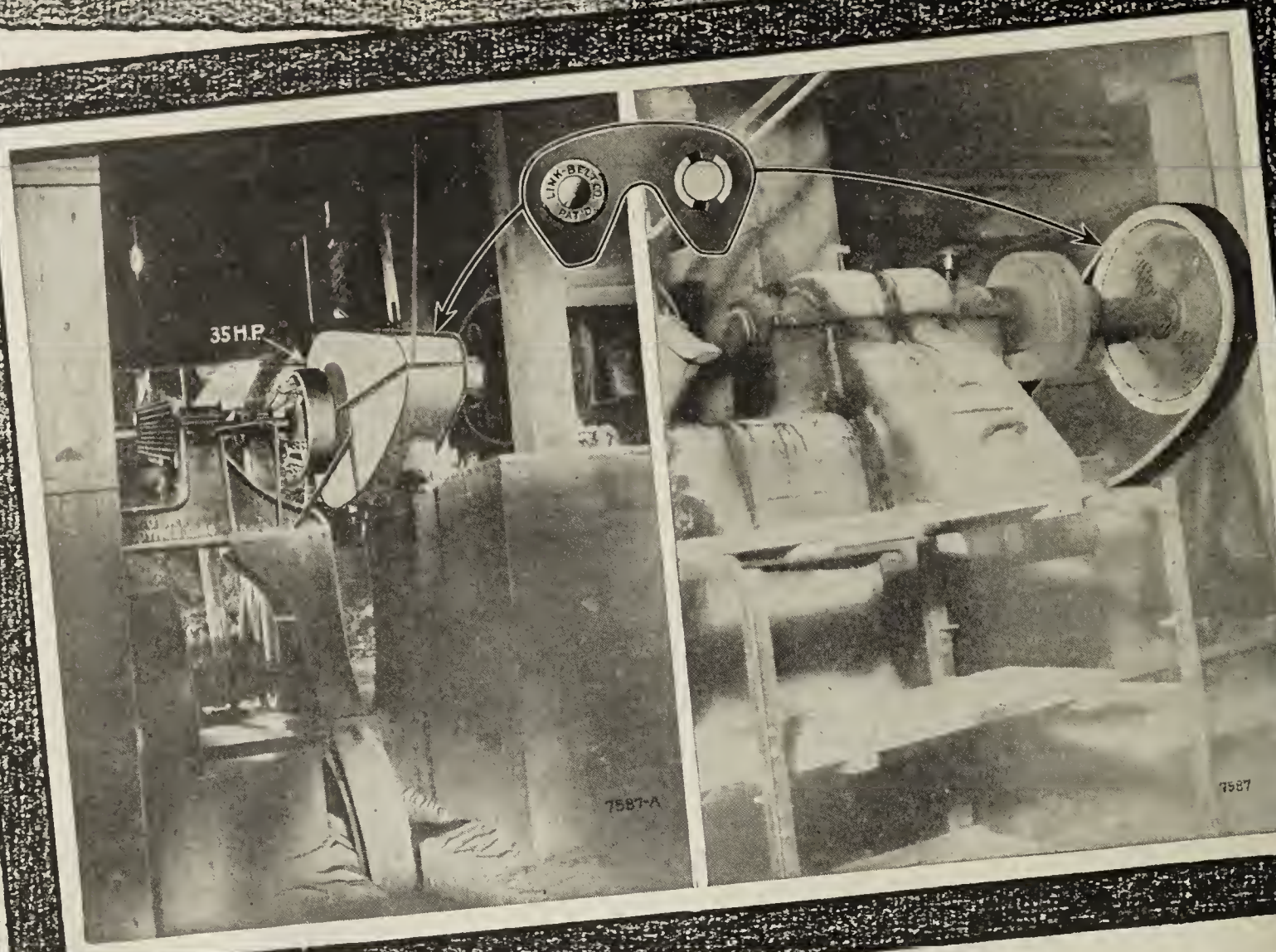
CONVEYOR BELT

-the belt you need now
and will eventually buy

MADE BY
THE B.F.GOODRICH COMPANY
AKRON, OHIO.

TRADE MARK

SAY "I SAW IT IN"
BRICK AND CLAY RECORD



LINK-BELT
SILENT CHAIN

is accepted as the ideal power transmission from motor to line shafting, or to individual machines. It is positive under all conditions of load and atmospheric variations, and drives at an efficiency of over 98% in hot, cold, damp and oily places.

The illustrations show the compact centers secured by Link-Belt Silent Chain Drives. Standard casings are provided to afford "Safety First" protection for the workmen, and to allow the chain to run in a bath of oil.

Write for Bulletin No. 91, "The Ideal Drive for Clay-working Machinery."



LINK-BELT COMPANY

PHILADELPHIA CHICAGO INDIANAPOLIS

New York.....299 Broadway
Boston.....49 Federal St.
Pittsburgh.....1501 Park Bldg.
St. Louis.....Central Nat'l Bank Bldg.
Buffalo.....698 Ellicott Sq.
Cleveland.....1304 Rockefeller Bldg.
Detroit.....732 Dime Bank Bldg.
Wilkes-Barre.....2nd Nat'l Bank Bldg.
Minneapolis.....418 So. Third St.
Louisville, Ky.....F. Wehle, Starks Bldg.
Seattle.....580 First Ave., S.
Portland, Ore.....14th and Lovejoy Sts.
Los Angeles.....161 N. Los Angeles St.
Denver...Lindrooth, Shubart & Co., Boston Bldg.
San Francisco.....461 Market St.
New Orleans.Whitney Supply Co., 418 S. Peters St.
Birmingham...D. T. Blakey, 309 Am. Trust Bldg.
Knoxville, Tenn.....Empire Bldg.
Charlotte, N. C., J. S. Cothran, Commercial Bank Bldg.
Toronto, Canada....Canadian Link-Belt Co., Ltd.

36

SAY "I SAW IT IN" BRICK AND CLAY RECORD



Building Bigger Business by Better Methods

Leading Brick Plants repeatedly order additional G-E Motor Drives

WHEN you cut down manufacturing costs—up go your profits. When you increase your production—when you increase the quality of your products — when you decrease spoilage—*up go your profits.*

When you make it easier for an employee to produce more, you make it easier for him to *earn* more; and you find it easier to get the *better kind* of help and much easier to *keep* them. *And up go your profits.*

When you cut down your power costs, when you cut down maintenance of plant—when you reduce overhead supervision—when you lessen breakage of machinery—when you reduce stoppage of machinery—these mean *more profits.*

These advantages and a greatly increased capacity for service to your customers come to plants equipped with G-E Motor Drive.

We will gladly send a member of our Engineering Organization who will study the requirements and conditions of your plant, and tell you how, where and why G-E Motor Drive will give you manufacturing advantages.

G-E Motor Drive

GENERAL ELECTRIC COMPANY

General Office, Schenectady N.Y. Sales Offices in all large cities

7017

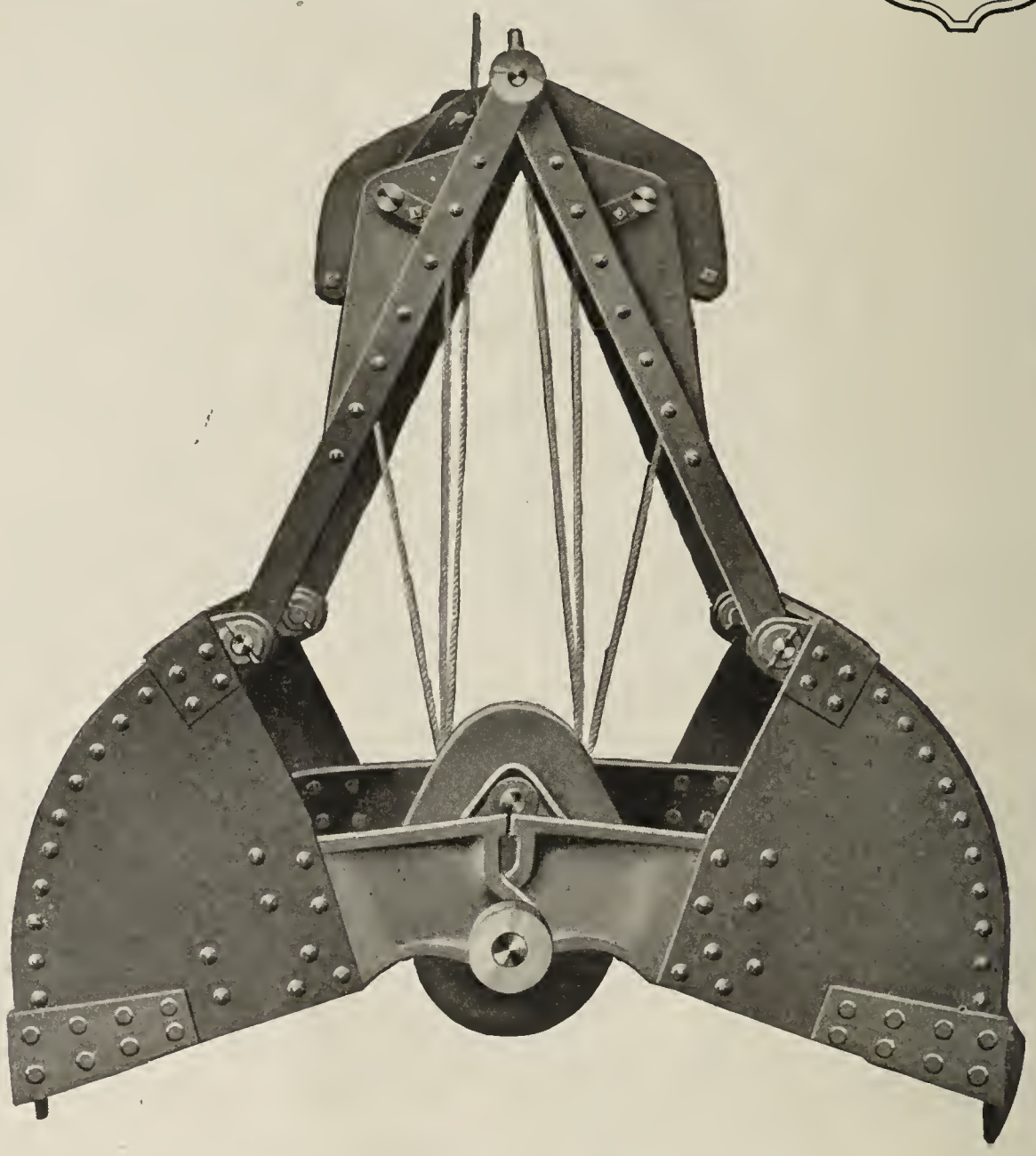
SAY I SAW IT IN BRICK AND CLAY RECORD

LAKEWOOD LINE BUILT TO LAST

THE HARDEST WORKER IN THE YARD

LAKEWOOD LINE BUILT TO LAST

LAKEWOOD TYPE 640 CLAM-SHELL BUCKET *for* BRICK YARDS



QUICK DELIVERY, ½ to 2 YARDS

Write for Book 16

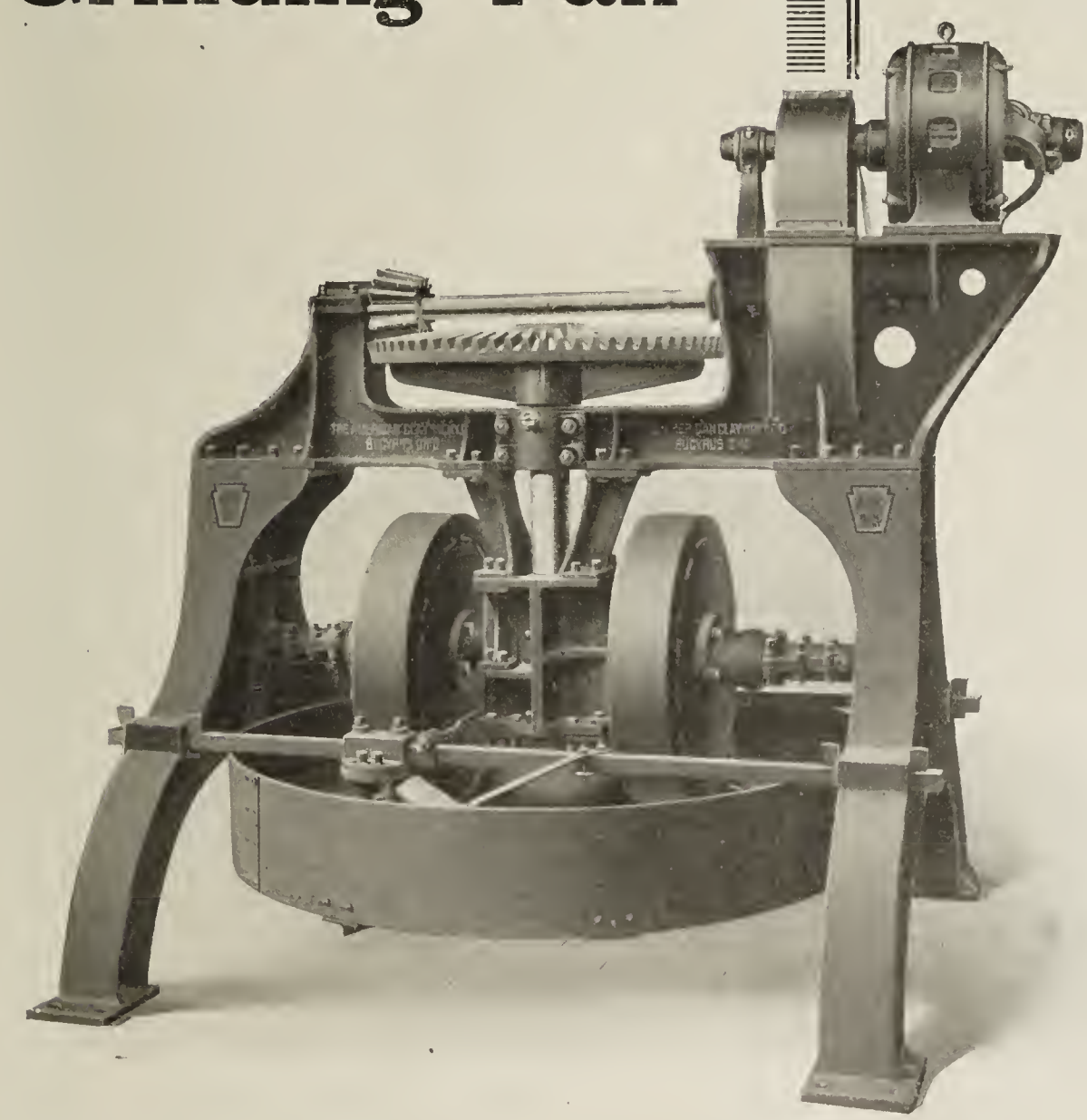
BUILT TO DIG
AND
BUILT TO LAST

MADE BY
THE LAKEWOOD ENGINEERING COMPANY
CLEVELAND

SAY "I SAW IT IN" BRICK AND CLAY RECORD



The American Standard Grinding Pan



Economize!

War Time is Economy Time

The American Dry and Wet Pans will economize for you in many ways.

They will handle more material in less time and on less power.

They are built to save on repairs and are constant workers.

They improve the product and cut the waste.

They are "Built Right and Run Right."

Let us send you our Pan Bulletin telling the whole story.

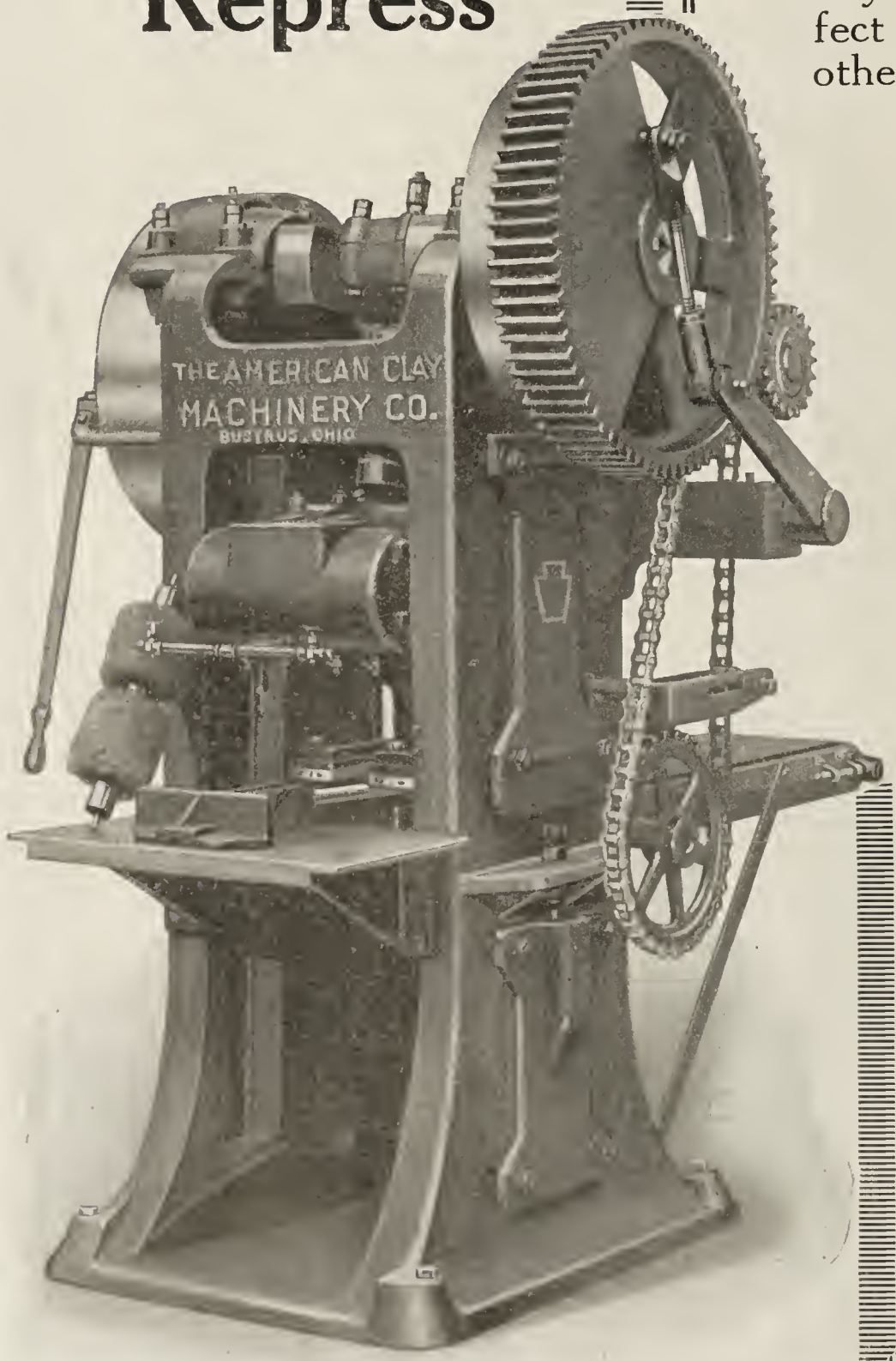
American Clay Machinery Company

BUCYRUS, OHIO





American Standard Repress



Economize!

War Time is Economy Time

The American Standard No. 292 Repress is a Press for Economy.

It is the cheapest press to buy because it produces perfect block at less cost than other presses.

It is built to operate at higher capacity, on less power, while its handy features of operation materially increase its economy.

It has a minimum of "Out of Order" time. It is built to keep running without repairs.

Ask for our No. 292 Repress Bulletin. It tells it all. We will supply the opinions of other users for the asking.

American Clay Machinery Co.
Bucyrus, Ohio





American Standard Kiln



Why not save half of your fuel when the Haigh Kiln will save it without cost to you. Saves half the kiln labor, too.

Economize!

War Time is Economy Time

The American Standard Haigh Kiln will win the war of Economy for You.

It costs less to build than the same capacity of other kilns.

It will save one half the fuel ordinarily used in other types of kilns.

It will give a better product and a higher per cent of first grade output.

It saves half of the Kiln labor, and the waste heat can be utilized for drying.

Send for the "Economy Story of the Haigh Kiln."

The American Clay Machinery Company
BUCYRUS, OHIO



Brick and Clay Record Buyers' Directory of Manufacturers of Machinery, Equipment and Supplies

See Table of Contents Page for Advertisers Directory

Analysts and Chemists, Clay.
Ceramic Supply & Cons. Co.

Aerial Tramways.
Broderick & Bascom Rope Co.

Automobile Trucks.
Duplex Truck Co.
Federal Motor Truck Co.
Kissel Motor Car Co.
Selden Truck Sales Co.
Service Motor Truck Co.
White Company.

Babbitt Metal.
Cleveland Alloys Co.

Barium Carbonate.
Rollin Chemical Co.
Roessler & Hasslacher Chem. Co.

Barrows and Trucks.
American Clay Machinery Co.
Bonnot Co.
Brewer & Co., H.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Chase Fdry. & Mfg. Co.
Fate Co., The J. D.
Freese & Co., E. M.
International Clay Mchy. Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Lakewood Engineering Co.
Wallace Mfg. Co.
Weller Mfg. Co.

Barytes, Carbonate of.
Roessler Hasslacher Chem. Co.
Rollin Chemical Co.

Belting.
Gandy Belting Co.
Goodrich Co., B. F.
Goodyear Tire & Rubber Co.
Hettrick Mfg. Co.
Main Belting Co.
Quaker City Rubber Co.
Sawyer Belting Co.
Scandinavia Belting Co.

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Ceramic Supply & Cons. Co.
Gandy Belting Co.
Goodrich Co., B. F.
Goodyear Tire & Rubber Co.
Hettrick Mfg. Co.
Link-Belt Company.
Manufacturers Equipment Co.
Morse Chain Co.
Quaker City Rubber Co.
Scandinavia Belting Co.
Weller Mfg. Co.

Belt Dressing.
Cling-Surface Co.
Hettrick Mfg. Co.
Sero Specialty Co.

Belt Fasteners.
Crescent Belt Fastener Co.

Boilers.
(See Engines and Boilers.)

Boiler Cleaning Compound.
Illinois Boiler Cleaning Compound Co.

Brick Conveyors.
Bonnot Co.
Brewer & Co., H.
Ceramic Sup. & Cons. Co.
Chambers Bros. Co.
Fate Co., J. D.
Link-Belt Company.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.

Brick Handling Machinery.
Mathews Gravity Carrier Co.

Brick Machines.
(See "Dry Press," "Stiff-Mud" and "Soft-Mud.")

Cables and Cableways.
Broderick & Bascom Rope Co.
Leschen & Sons Rope Co.

Cars.
Ceramic Supply & Cons. Co.
Chase Fdry. & Mfg. Co.
Fate Co., J. D.
International Clay Mchy. Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Orenstein-Arthur Koppel Co.
Standard Dry Kiln Co.
Trautwein Dryer & Eng. Co.
Watt Mining Car Wheel Co.
Weller Mfg. Co.
Youngstown Steel Car Co.

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Marion Mach., Fdry. & S. Co.

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Woodhouse Chain Works.

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Chambers Bros. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Marion Mach., Fdry. Sup. Co.
Steele & Sons, J. C.

Clay Gatherers.
Eagle Iron Works.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Clocks.
Hardinge Bros., Inc.

Clutches.
Hill Clutch Co.
Link-Belt Company.

Coloring.
Williams & Co., C. K.

Conveying Machinery.
(See Elevators and Conveyors.)

Crushers and Pulverizers.
American Clay Machy. Co.
American Pulverizer Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
K-B Pulverizer Co.
Manufacturers Equipment Co.
Sturtevant Mill Co.
Wallace Mfg. Co.

Cutters, Automatic Rotary.
American Clay Machy. Co.
Bonnot Co.
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Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
International Clay Mchy. Co.
Manufacturers Equipment Co.
Marion M., Fdry. & S. Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

Cutting Wires.
Ceramic Supply & Cons. Co.
Manufacturers Equipment Co.

Dies.
American Clay Machy. Co.
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Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate, J. D., Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Weller Mfg. Co.

Digger.
Buckeye Traction Ditcher Co.

Disintegrators.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Manufacturers Equip. Co.
Marion M., Fdry. & Sup. Co.

Drills.
Sanderson-Cyclone Drill Co.

Dryers.
American Clay Machy. Co.
Bartlett & Snow Co., C. O.
Bonnot Co.
Boss Co., J. C.
Chambers Bros. Co.
Drymore System.
Fate, J. D., Co.
International Clay Machy. Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.
Philadelphia Textile Machy.
Standard Dry Kiln Co.
Steele & Sons, J. C.
Trautwein Dryer & Eng. Co.

Dryers (Sand).
American Clay Machy. Co.
Bonnot Company.
Ceramic Supply & Cons. Co.
Fate Co., J. D.
Jackson & Church Co.

Dry Pans.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Eagle Iron Works.
Fate Co., J. D.
Freese & Co., E. M.
Jackson & Church Co.
International Clay Mchy. Co.
Manufacturers Equipment Co.

Dry Press Brick Machines.
American Clay Machy. Co.
Ceramic Supply & Cons. Co.

Dynamos and Generators.
General Electric Co.
Lincoln Electric Co.
Westinghouse El. & Mfg. Co.

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Automatic Transportation Co.
Elwell-Parker Electric Co.
Orenstein-Arthur Koppel Co.

Elevators and Conveyors.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Gandy Belting Co.
International Clay Mchy. Co.
Link-Belt Company.
Main Belting Co.
Manufacturers Equipment Co.
Mathews Gravity Carrier Co.
Weller Mfg. Co.

Engines and Boilers.
American Clay Machy. Co.
Bonnot Co.
Freese & Co., E. M.
Jackson & Church Co.
Manufacturers Equipment Co.

Excavators.
Link-Belt Company.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Expansion Joints.
Barrett Company, The.

Explosives.
Du Pont Powder Co.
Hercules Powder Co.

Fans.
American Clay Machy. Co.
Bonnot Co.
Clarage Fan Co.
Freese & Co., E. M.
Manufacturers Equipment Co.
Trautwein Dryer & Eng. Co.

Feed Water Heaters.
Canton Grate Co.
Freese & Co., E. M.
Jackson & Church Co.

Filler (Paving).
Barrett Company, The.

Filter Presses.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.

Flower Pot Machinery.
Baird Machine & Mfg. Co.

Flue Cleaners.
Marion Mach. Fy. & Sup. Co.

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Cincinnati Frog & Switch Co.
Orenstein-Arthur Koppel Co.

Gas Producers.
Wood & Co., R. D.

Gears.
Baird Machine & Mfg. Co.
General Electric Co.,
Link-Belt Company.

Granulators.
American Clay Machy Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
International Clay Mchy. Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

Grates and Grate Bars.
Armstrong Mfg. Co.
Canton Grate Co.
Hook Patent Kiln Co.
Jackson & Church Co.
Manufacturers Equipment Co.
Marion Mach., Fdry. & S. Co.
Smith Co., Claude.

Gravity Carriers.
Mathews Gravity Carrier Co.

Grease.
Stock Xylite Grease & Oil Co.

Hoists.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate Co., J. D.
Link-Belt Company.
Manufacturers Equipment Co.
Weller Mfg. Co.

Hollow Brick Machinery.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
International Clay Mchy. Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.

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Goodyear Tire & Rubber Co.

Hydrometers or Moisture Indicators.
Taylor Instrum't Companies.

Insulating Brick and Powder.
Celite Products Co.

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American Clay Machy. Co.
Bonnot Co.
Boss Co., J. C.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Didier-March Co.
Fate Co., J. D.
Hook Patent Kiln Co.
International Clay Machy. Co.
Manufacturers Equipment Co.
Owens Continuous Tunnel Kiln Co., J. B.
Smith Co., Claude.

Kiln Accessories.
Fate Co., J. D.
Hook Patent Kiln Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Smith Co., Claude.

Locomotives.
Baldwin Locomotive Works
Bell Locomotive Works, Inc.
Fate Co., J. D.
General Electric Co.

Lubricants.
Garnet Mfg. Co.
Randall Graphite Sheet Lubricator Co.
Stock Xylite Grease & Oil Co.

Manganese.
Crimora Manganese Co.
Roessler & Hasslacher Chemical Co.

Mortar Colors.
Williams & Co., C. K.

Molds.
American Clay Machy. Co.
Baird Machine & Mfg. Co.
Bonnot Co.
Manufacturers Equipment Co.

Mold Sanders.
American Clay Machy. Co.
Bonnot Co.
Manufacturers Equipment Co.

Motors—Electric.
General Electric Co.
Lincoln Electric Co.
Westinghouse El. & Mfg. Co.

Motor Trucks.
Duplex Truck Co.
Federal Motor Truck Co.
Harvey Motor Truck Co.
Kissel Motor Car Co.
Selden Truck Sales Co.
Service Motor Truck Co.
White Company.

Oil Burners.
Weller Mfg. Co.

Packing.
Goodyear Tire & Rubber Co.
Jenkins Bros.

Paints.
Williams & Co., C. K.

Pans, Dry Pans, Wet Pans, Clay or Chaser Mills Combination Tempering Pans.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
International Clay Mchy. Co.
Jackson & Church.
Manufacturers Equipment Co.

Pallets and Trays.
Lakewood Engineering Co.
Ohio Galvanizing & Mfg. Co.

Patents.
Peck, Hubert E.

Perforated Sheet Metal.
Brewer & Co., H.
Ceramic Supply & Cons. Co.

Portable Track.
Cincinnati Frog & Switch Co.
Lakewood Eng. Co.
Manufacturers Equipment Co.
Orenstein-Arthur Koppel Co.

Potters' Machinery.
Bonnot Co.
Baird Machine & Mfg. Co.
Fate Co., J. D.

Powder.
Du Pont Powder Co.
Hercules Powder Co.

Power Plant Equipment (Complete).
American Clay Machy. Co.
Bonnot Co.
Jackson & Church Co.
Link-Belt Company.
Taylor Inst. Companies.
Trautwein Dryer & Eng. Co.
Weller Mfg. Co.

Power Transmission.
Baird Machine & Mfg. Co.
Link-Belt Company.
Morse Chain Co.

Pug Mills.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
International Clay Machy. Co.
Manufacturers Equipment Co.
Potts & Co., C. A.
Steele & Sons, J. C.
Wallace Mfg. Co.

Pulverizers.
(See Crushers).

Pulleys.
Cork Insert Company.

Pyrometers.
Beighlee Instrument Co.
Bristol Co.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Engelhard, Chas.
Price Electric Co.
Sander Instrument Co.
Stupakoff Laboratories.
Taylor Instrm't Companies.
Thwing Instrument Co.
Trautwein Dryer & Eng. Co.
Veritas Firing System Co.

Rails (Frogs and Switches).
Buckeye Rolling Mill Co.
Ceramic Supply & Cons. Co.
Chase Fdry. & Mfg. Co.
Cincinnati Frog & Switch Co.
Lakewood Engineering Co.
Orenstein-Arthur Koppel Co.

Rattler.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Freese & Co., E. M.
Manufacturers Equipment Co.

Recording Gages.
Brown Instrument Co.
Ceramic Supply & Cons. Co.
Price Electric Co.
Sander Instrument Co.
Taylor Instrum't Companies.

Represses.
American Clay Machy. Co.
Bonnot Co.
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Freese & Co., E. M.
Lakewood Engineering Co.
Steele & Sons, J. C.

Rope Preservative.
Cling-Surface Co.

Roofing Tile Machinery.
American Clay Machy. Co.
Bonnot Co.
Fate Co., J. D.
Freese & Co., E. M.

Rope (Wire and Manila).
Broderick & Bascom Rope Co.
Leschens & Sons Rope Co.
Manufacturers Equipment Co.

Sand Lime Brick Machinery.
American Clay Machy. Co.
Ceramic Supply & Cons. Co.
Jackson & Church Co.
Lakewood Engineering Co.
Manufacturers Equipment Co.

Rubber Goods.
Goodyear Tire & Rubber Co.

Scrapers, Plows and Clay Gatherers.
Eagle Iron Wks. Co.
Sauerman Bros.
Schofield-Burkett Cons. Co.

Screens (Clay and Cement).
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chase Fdry. & Mfg. Co
Ceramic Supply & Cons. Co.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
Lakewood Engineering Co.
Link-Belt Company.
Schofield-Burkett Cons. Co.
Sturtevant Mill Co.
Weller Mfg. Co.

Sewer Pipe Machinery.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Manufacturers Equipment Co.
Toronto Fdry. & Machine Co.

Shovels (Power).
American Clay Machy. Co.
Link-Belt Company.
Marion Steam Shovel Co.
Thew Automatic Shovel Co.
Osgood Co.

Silent Chain Drives.
Link-Belt Company.
Morse Chain Co.

Soft Mud Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Chambers Bros. Co.
Eastern Machy. Co.
International Clay Mchy. Co.
Manufacturers Equipment Co.
Potts & Co., C. & A.
Wallace Mfg. Co.

Stiff Mud Brick Machines.
American Clay Machy. Co.
Bonnot Co.
Brewer & Co., H.
Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
International Clay Machy. Co.
Steele & Sons, J. C.
Wallace Mfg. Co.

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Lakewood Eng. Co.
Ohio Galvanizing & Mfg. Co.

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Bonnot Co.
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Freese & Co., E. M.
Lakewood Engineering Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.
Wallace Mfg. Co.
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Bristol Co.
Brown Instrument Co.
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Manufacturers Equipment Co.
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Bonnot Co.
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Chambers Bros. Co.
Fate Co., J. D.
Freese & Co., E. M.
International Clay Mchy. Co.
Manufacturers Equipment Co.
Steele & Sons, J. C.
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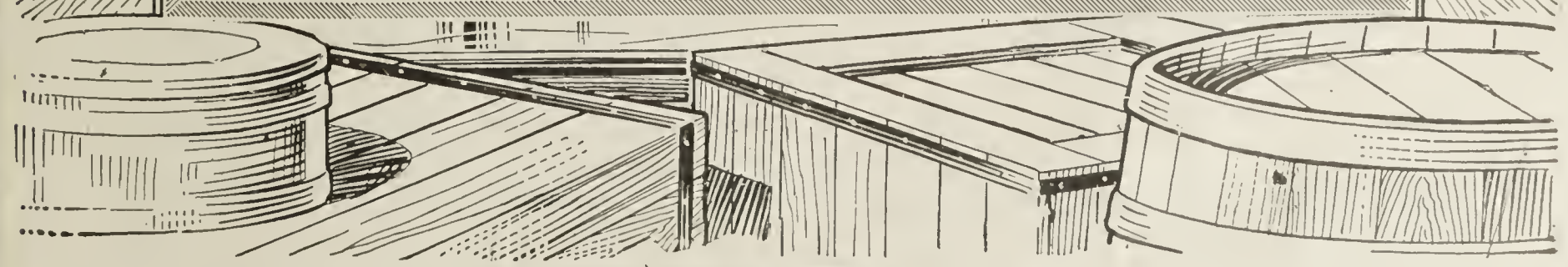
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Works: Conneaut, Ohio

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on Face Brick and Other Clay Products

The purpose of this directory is twofold; it serves to prevent a manufacturer from adopting a trade-name that is already in use—and it also helps manufacturers who use it to establish priority of claim to a name.

Algonquin—Alliance (O.) Brick Co.

Armor—Greenpoint Fire Brick Co., Brooklyn, N. Y.

Artbrique—Yingling-Martin Brick Co., Johnsonburg, Pa.

Athena—Hocking Valley Fire Clay Co., Nelsonville, Ohio.

Beaverclay—Beaver Clay Mfg. Co., New Galilee, Pa.

Belden—The Belden Brick Co., Canton, O.

Bessemer Block—Bessemer Limestone Co., Youngstown, O.

Bokhara (Hy-tex)—Hydraulic-Press. Bk. Co., St. Louis.

Burlap—Key-James Brick Co., P. O. Alton Park, Tenn.

Caledonian—Fiske & Co., Inc., Boston and New York.

Century Block—Metropolitan Paving Brick Co., Canton, O.

Chaldean (Hy-tex)—Hydraulic - Press. Brick Co., St. Louis and Chicago.

Chinchilla (Hy-tex)—Hydraulic-Press Bk. Co., Indianapolis.

Citadel—Citadel Brick & Paving Block Co., Ltd., Quebec.

Claytex—Walton N. Cable, New York City.

Clayton Missions—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.

Clayton Velvets—Washington Brick, Lime & Sewer Pipe Co., Portland, Ore.

Cloister—Western Brick Co., Danville, Ill.

Colonial Reds—Belden Brick Co., Canton, O.

Columclay—Columbia Clay Co., Columbia, S. C.

Cordova (Roofing Tile)—Gladding, McBean & Co., San Francisco and Lincoln, Cal.

Corsweve—Thomas Moulding Brick Co., Chicago, Ill.

Crown—Green Fire Brick Co., A. P., Mexico, Mo.

Dabney—Dabney Brick Co., Galveston, Texas.

Denison—Mason City (Ia.) Brick & Tile Co.

Doric—Western Brick Co., Danville, Ill.

Eastvale Iron Spots—Eastvale Face Brick Co., Pittsburgh, Pa.

Egyptian Paving Block—Murphysboro (Ill.) Paving Brick Co.

Embostex—Streator (Ill.) Brick Co.

Empire—Green Fire Brick Co., A. P., Mexico, Mo.

Empire—Western Brick Co., Danville, Ill.

Everhard Antique—Everhard Co., Massillon, O.

Everhard Double-texture—Everhard Co., Massillon, O.

Everhard Fern-leaf—Everhard Co., Massillon, Ohio.

Everlasting—Mason City (Ia.) Brick & Tile Co.

Fallston Iron Spots—Fallston Fire Clay Co., Pittsburgh, Pa.

Fallston Weavetex—Fallston Fire Clay Co., Pittsburgh, Pa.

Fisklock—Fiske & Co., Inc., Boston and New York.

Ful-tone—Fultonham-Texture Brick Co., East Fultonham, Ohio.

Fultonham-Texture—Fultonham-Texture Brick Co., East Fultonham, Ohio.

Gothic—Western Brick Co., Danville, Ill.

Greendales—Hocking Valley Pro. Co., Columbus, O.

Greendale Red Rugs—Hocking Valley Pro. Co., Columbus, O.

Greendale Rugs—Hocking Valley Pro. Co., Columbus, O.

Grid—Fiske & Co., Inc., Boston and New York.

Hi-Grade — Southwest Building Supply Co., Springfield, Mo.

Hocking Block—Hocking Valley Brick Co., Columbus, O.

Holland Split—Thomas Moulding Brick Co., Chicago, Ill.

Homespun—Thomas Moulding Brick Co., Chicago, Ill.

Homestead—Farr Brick Co., Cleveland, O.

Hood's Pottry—B. Mifflin Hood Brick Co., Atlanta, Ga.

Hy-namel—Hydraulic-Press. Brick Company, St. Louis, Mo.

Hy-tex—Hydraulic-Press. Bk. Co., St. Louis, Mo.

Interlocking Tile—Denison Interlocking Tile Corporation, Cleveland, Ohio.

Ironclay—Iron Clay Brick Co., Columbus, O.

Ironstone Block—Terre Haute (Ind.) Vit. Bk. Co.

McArthur Mission Brick—McArthur Brick Co., McArthur, O.

McArthur Rug Brick—McArthur Brick Co., Massillon, O.

Medal Block—Medal Paving Brick Co., Cleveland, Ohio.

Mexico, Mo.—Green Fire Brick Co., A. P., Mexico, Mo.

Metropolitan Block—Metropolitan Pav. Brick Co., Canton, O.

Montezuma Red Face—Montezuma (Ind.) Brick Works.

Mosaic—Western Brick Co., Danville, Pa.

Muskogee Rug—Muskogee (Okla.) Vitrified Brick Co.

Navajo—Kansas Buff Brick & Mfg. Co., Buffville, Kan.

Nuvogue—Boone (Ia.) Brick, Tile & Pav. Co.

Old Rose Colonial—Montezuma (Ind.) Brick Works.

Olean Block—Sterling Brick Co., Olean, N. Y.

Persian Split—Thomas Moulding Brick Co., Chicago, Ill.

Porter National—Globe Brick Co., East Liverpool, O.

Poston Knobstone Block—Martinsville (Ind.) Brick Co.

Promenade—Yingling-Martin Brick Co., Johnsonburg, Pa.

Purington Pavers—Purington Pav. Brick Co., Galesburg, Ill.

Red Rock Ruffs—Auburn Shale Brick Co., Gettysburg, Pa.

Reynoldsville—The Reynoldsville (Pa.) Brick & Tile Co.

Rocktex—Citadel Brick & Paving Block Co., Ltd., Quebec.

Ruftex—Thomas Moulding Brick Co., Chicago.

Rug—Hocking Valley Pro. Co., Columbus, O.

Rugosa—Wisconsin Lime & Cement Co., Chicago, Ill.

Rustico (Hy-tex)—Hydraulic-Press. Bk. Co., Davenport, Ia.

Rustique Oriental—Martinsville (Ind.) Bk. Co.

Saraband (Hy-tex)—Hydraulic - Press Bk. Co., St. Louis, Mo.

Shale-Tex—Streator (Ill.) Brick Co.

Sheffield—Sheffield Brick & Tile Co. and Sheffield Tile Co., Sheffield, Iowa.

Shirvan (Hy-tex)—Hydraulic-Press. Bk. Co., Cleveland, O.

Shor-Wil—Shorey - Willis Bk. & Supply Co., Cincinnati, O.

Special—Green Fire Brick Co., A. P., Mexico, Mo.

Speedway Block—Alliance (O.) Clay Prod. Co.

Standard—Green Fire Brick Co., A. P., Mexico, Mo.

Stranger Reds—The Reynoldsville (Pa.) Brick & Tile Co.

Sun-Tex—Sun Brick Co., Ltd., Toronto, Ont.

Sykesville—The Reynoldsville (Pa.) Brick & Tile Co.

Tapestry—Fiske & Co., Inc., Boston and New York.

Tavern Brick—Metropolitan Pav. Brick Co., Canton, O.

Tex-Tile—Clymer (Pa.) Brick & Fire Clay Co.

Textur—Thomas Moulding Brick Co., Chicago, Ill.

Tiffany—Thomas Moulding Brick Co., Chicago.

Tiger Shale—Belden Brick Co., Canton, O.

Toronto—Toronto Fire Clay Co., Toronto, O.

Turkestan—Beaver Clay Mfg. Co., New Galilee, Pa.

Turko—Rochester (Pa.) Clay Products Co.

U-Tex—Fultonham-Texture Brick Co., East Fultonham, Ohio.

Velour (Hy-tex)—Hydraulic-Press. Brick Co., St. Louis and Chicago.

Vertex—Beaver Clay Mfg. Co., New Galilee, Pa.

Vitri-Craft—Schuylkill Valley Vitrified Products Co., Oaks, Montgomery Co., Pa.

Volcanic—Beaver Clay Mfg. Co., New Galilee, Pa.

West Salem Matts—West Salem (Ill.) Hollow Brick & Tile Co.

Wire-Cut Lug Brick—Dunn Wire-Cut Lug Brick Co., Conneaut, Ohio.



The National Drain Tile Co.

of Terre Haute, Indiana

use SAWYER belting

In reply to a letter of inquiry to them regarding the Sawyer belt, they say—

" we have used this belt for several years and have found it very satisfactory."



TRADE SAWYER MARK
Registered

STITCHED CANVAS BELTING

is the sensible belt for you to buy, for the very simple reason that it gives service.

Have you noticed the list of firms that are using Sawyer and all getting satisfactory results?

Firms of the standing of above do not use an inferior belt, they only use the best. Why don't YOU use Sawyer?

Sawyer Belting Company - - Cleveland, O.

THE CHASE DRYER CARS

With patented flexible and reversible boxing and roller bearings

The *Best Equipment* is the Equipment that gives you the *Best Service*

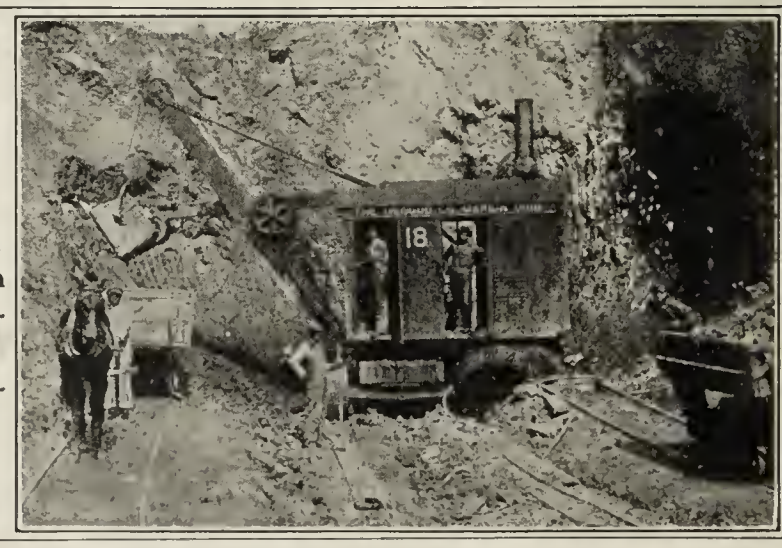
The Chase Fdry. & Mfg. Company
Columbus, Ohio



You will do better with an OSGOOD

The OSGOOD "18," ¾ yard Traction Revolving Shovel will mix the different stratas of your supply material with every lift of the dipper. It will enable you to get the material quicker, better and at much less expense.
We shall be pleased to give full description and detail information upon application.

THE OSGOOD COMPANY, MARION, OHIO



SAY "I SAW IT IN" BRICK AND CLAY RECORD

$6,831.35—The Value of Fuel Saved in One Year

¶ Actual records were kept for 365 days in the burning of 9-inch, high grade, refractory brick in one continuous tunnel kiln and in 7 30-foot round kilns, during which time 5,110,000 brick were burned in the continuous kiln as against 5,040,000 in the 7 round kilns.

¶ But this isn't all—the actual labor-saving amounted to $5,808.00. And taking into consideration the necessary items of depreciation, interest on plant, maintenance and repairs, the average yearly cost for burning 1,000 brick in continuous tunnel kiln system was $2.95 as against $6.20 in the 7-round kilns.

¶ If you are really interested in the greater efficiency of burning, you will let us tell you more about the actual accomplishments of

The Didier-March Continuous Railroad Tunnel Kiln

Didier-March Company

Perth Amboy, New Jersey

Contractors—Manufacturers of Refractories—Engineers



Digs Anywhere Dumps Anywhere

If the clay is at a considerable distance from the plant, the Schofield-Burkett Excavator is set up at the pit, loading the clay into cars or wagons.

Sometimes it is the good fortune of the plant to have the clay near to the factory, then it is feasible to dig and dump the clay at the plant.

The system is flexible, it gets a good mixture of clay, it is cheap to operate. Used on many clay plants all over the United States with phenomenal success. Let us figure with you!

The Schofield-Burkett Construction Company

Macon, Georgia



SAY "I SAW IT IN" BRICK AND CLAY RECORD

These Men Used to Spend Half Their Time Pushing Empty Wheelbarrows

The other half was the only part of a day's work that was productive. But the boss had to pay the same price for the empty barrows that he did for the full ones.

Now the men find their work easy and pleasant, and they are making more money because the boss is more prosperous.

Send for detailed information and illustrated catalog.



This Gravity Conveyer Solves the Brick-Handling Problem

The Mathews Patented Gravity Brick Conveyer is old enough to be well established, but still young enough to be a novelty to those who have never seen it in operation. In another year or two it will be the only method used for handling brick quickly and economically.

Mathews Gravity Carrier Co.

BRANCH OFFICES
IN ALL LEADING AMERICAN CITIES

Main Office and Factory ELLWOOD CITY, PA.
Branch Factories:-TORONTO, ONT. LONDON, ENG.

WHAT DO YOU DO?

It is probable that a new problem presents itself to you—or to some of your associates at least once each week. Do you solve it satisfactorily or do you let it slide? Why not insure yourself against such incidents? Start a factory library, fill it with a few choice books that deal with your plant and manufacturing problems. From this list you should be able to select a splendid assortment.

Bricks and Tiles	$1.25	Hollow Tile House, The	2.50
Brick Drying (English edition)	1.00	How to Analyze Clay	1.00
Bricklaying, Rudiments of Practical	.65	How to Build Up Furnace Efficiency	1.00
Bricklaying System	3.00	Kilns and Kiln Building	1.50
Brick Work (Walker)	.65	Land Drainage	1.50
Brickwork and Masonry	3.00	Manufacture of Glazed Brick	2.50
Building Construction and Superintendence, Part 1, Masons' Work	6.00	Manufacture of Roofing Tile	1.00
Bungalows, Camps and Mountain Houses	2.00	Modern Brickmaking	5.00
Ceramic Calculations	1.20	Notes on Pottery Clays	1.50
Clay and Pottery Industries	5.00	Observations on Pottery	.60
Clays: Their Occurrence, Properties and Uses	5.00	One Hundred Bungalows	.50
Clays, Tables of Analyses	2.00	Pottery	1.25
Clayworker's Handbook	2.25	Practical Brick and Tile Book	2.50
Clay-Working Problems	1.50	Practical Farm Drainage	1.50
Engines and Boilers	1.00	Producer Gas and Gas Producers	4.00
Engineering for Land Drainage	2.00	Refractories and Furnaces	4.00
Estimating Frame and Brick Houses	1.00	Scumming and Efflorescence	.50
Garages and Motor Boat Houses	$1.00	Seger's Collected Works	3.50
Glazer's Book	1.00	Steam Power	2.00

Select those books that you want the most, and we will send them to you postpaid upon receipt of price. No books sent on approval. All foreign books subject to 15% import duty.

Brick and Clay Record 445 Plymouth Court Chicago, Illinois



"Production Increased 20 Percent and In Some Cases 50"



This is what a leading tile company says about Westinghouse Equipment:

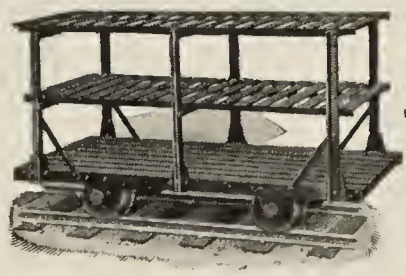
"We installed Westinghouse Motors about seven or eight years ago and have found them efficient in every way, having given us a general increase in production of twenty per cent, and in some cases fifty. The upkeep is much less than line shafting and belting.
"We have a great many in operation that have not been touched other than to clean and oil since they have been installed."

We may be able to do the same for you. Write for Booklet 3072.

Westinghouse Electric & Manufacturing Company
East Pittsburgh, Pa.

Westinghouse

WATT WATT



What's in a Name?



WHEN you hear a man say he has an Elgin or Waltham watch—or she bought her silver at Tiffany's—does it signify anything? Would you feel as safe buying a diamond in some little side shop as you would from a big firm that had a reliable name? The Watt Company have the reputation of being the most reliable car builders in America—and we have maintained that reputation only by giving entire satisfaction. If you want better cars, write us today, asking for a car more suitable for your purpose. Catalogues on request.

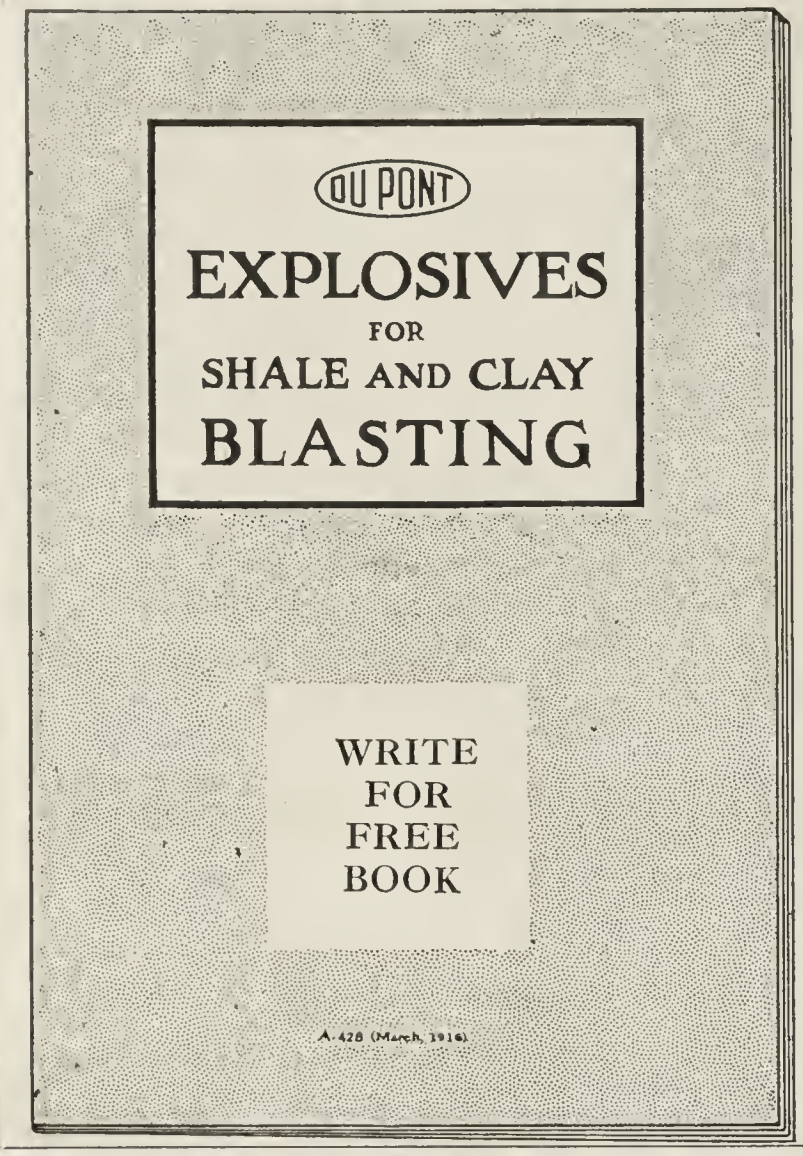


The Watt Mining Car Wheel Co.
Barnesville, Ohio, U. S. A.



WATT WATT

SAY "I SAW IT IN" BRICK AND CLAY RECORD



Lower the Cost
of Handling Shale and Clay

The increasing use of clay products calls for adoption of new and better methods for enlarging the pit and handling clay and shale in a manner to cause a saving of time and labor and assure an ample supply of material for pug, pan or grinder.

By Using
Red Cross Explosives

to clear stumps and boulders off the surface, improve drainage conditions and loosen the over-burden, the clay and shale stratum is made available for shovelers. Blasting the clay banks lessens the strain on steam shovel, speeds up loading and puts the material into better condition for plant requirements.

Free Booklet Tells How

to use Red Cross Explosives for removing clay pit over-burdens and correct methods of placing explosives to loosen clay and shale for quick, cheap and easy handling. Try the new ways to mine clays. Ask for booklet "Explosives for Shale and Clay Blasting."

E. I. DU PONT DE NEMOURS & CO.
WILMINGTON, DELAWARE
Powder Makers Since 1802



Keep Pumps Going

This packing holds tight against steam or water without binding rods or interfering with the easy action of pumps, because the bearing on rods is never in excess of the requirement.

DANIEL'S ROD PACKING **P. P. P.**

REG. U. S. PAT. OFF.

P. P. P. works automatically on the "give-and-take" principle; a fact that puts the packing in a class of its own.
Plant superintendents in all parts of the world specify and use P. P. P. because of its peculiar adaptability to clay works duty. Sold by dealers everywhere.

Quaker City Rubber Co.

PHILADELPHIA 629 Market St. | CHICAGO 182 W. Lake St. | PITTSBURGH 211 Wood St. | NEW YORK 53 Murray St.



Baldwin Gasoline Locomotives



are suitable for work in brick-yards, industrial plants, and construction service. They are strongly built and simple to operate; are ready for work at any time, but consume no fuel while standing idle. There are four standard sizes, weighing respectively 3½, 5, 7 and 9 tons. The style of cab, and the equipment used, can be arranged to suit operating conditions.

Baldwin Record No. 74 tells all about these machines.

THE BALDWIN LOCOMOTIVE WORKS

PHILADELPHIA, PA., U. S. A.

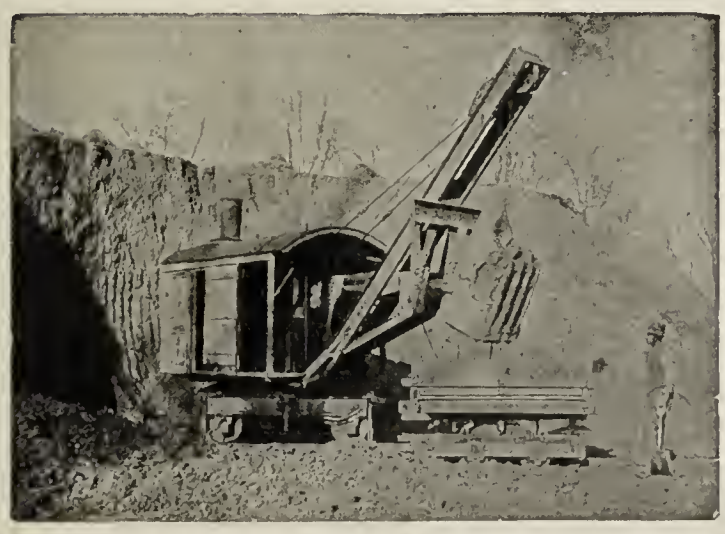
REPRESENTED BY

F. W. Weston, 120 Broadway, New York, N. Y.
Charles Riddell, 627 Railway Exchange, Chicago, Ill.
A. Wm. Hinger, 512 Northwestern Bank Bldg., Portland, Ore.
C. H. Peterson, 1210 Boatmen's Bank Bldg., St. Louis, Mo.
George F. Jones, 407 Travelers' Bldg., Richmond, Va.
Williams, Dimond & Co., 310 Sansome St., San Francisco, Cal.

Type 0 THEW Loads Clay for 264,000,000 Brick in 9 Years

Type 3 Thew loads clay for 397,500,000 brick in 15 years.

Type 1 Thew, 11 years old, loads clay for 31,000,000 brick in 1916 and was shut down but half a day during the year.



The first Thew, built 24 years ago, "works every day without giving any trouble."

400 brick manufacturers using Thew Shovels will bear similar testimony.

Use a Thew—It Pays

Write for Circular "C" and list of THEW owners near you.

The Thew Automatic Shovel Co., Lorain, Ohio

New York Office:—30 Church Street.



The Buyer's Interest in Wasteless Advertising

BUYERS who appreciate that waste in selling must eventually be passed on to them in some form, are paying more and more attention to the sales methods of the concerns seeking their business.

> The extravagant use of space in publications of general circulation, to advertise a commodity or a service appealing chiefly to a certain well-defined class, is not only poor judgment, but *it is an economic waste.*

Can you imagine an intelligent salesman, with a proposition for a steel mill or a dry goods store, calling at every office in town in an effort to locate a prospect? How needlessly wasteful to adopt similar methods in advertising, which is simply an improved means of accomplishing certain necessary steps of a sale.

On the other hand, the seller who uses the business papers reaching *only* the class interested in his message, is employing the most direct, efficient and economical method of getting in touch with prospective buyers.

> Properly used, the good business paper bears the same relation to the sales department, that an improved machine does to the production department. Better selling methods go hand in hand with better manufacturing methods.

To encourage wasteless advertising, the most efficient modern means of bringing buyer and seller together, there is every reason why the discriminating buyer should give preferred consideration to the concern that tells its business story in the buyer's own business paper.

Ask this office anything you want to know about Business Papers or Business Paper Advertising.

THE ASSOCIATED BUSINESS PAPERS · INC.

The International Organization of Trade, Technical and Class Publications

Headquarters, 220 West 42nd Street
New York

LIST OF MEMBERS

Each member has subscribed to the 10 "Standards of Practice," a high code of ethics covering all departments of business paper publishing.

Advertising & Selling
American Architect
American Exporter
American Hatter
American Machinist
American Paint & Oil Dealer
American Printer
American Blacksmith
Automobile, The
Automobile Dealer & Repairer
American School Board Journal
Architectural Record
Aviation & Aeronautical Engineering
Boot & Shoe Recorder
Brick & Clay Record
Buildings & Building Management
Bulletin of Pharmacy
Canadian Grocer
Canadian Railway & Marine World
Cement World
Clothier & Furnisher
Coal Age
Concrete
Domestic Engineering
Drygoodsman, The
Dry Goods Economist
Dry Goods Reporter
Editor & Publisher
Electrical Review & Western Electrician
Electrical World
Electric Railway Journal
Electric Traction
Engineering & Mining Journal
Engineering News-Record
Farm Machinery—Farm Power
Furniture Manufacturer & Artisan
Grand Rapids Furniture Record
Haberdasher, The
Hardware Age
Hide & Leather
Hotel Monthly
Illustrated Milliner
Implement Age
Industrial Arts Magazine
Inland Printer
Iron Age
International Trade
Lumber Trade Journal
Lumber World Review
Manufacturing Jeweler
Marine Engineering
Metal Worker, Plumber & Steam Fitter
Metallurgical & Chemical Engineering
Modern Hospital
Motor Age
Motor World
National Builder
National Druggist
National Petroleum News
Power
Practical Engineer
Railway Age Gazette
Railway Electrical Engineer
Railway Maintenance Engineer
Railway Mechanical Engineer
Railway Signal Engineer
Shoe & Leather Reporter
Shoe Findings
Shoe Retailer
Tea & Coffee Trade Journal
Textile World Journal
Transfer & Storage
Woodworker



Classified Advertisements

Classified advertisements are inserted at the following rates: First insertion, eight cents per word, the captions "For Sale," "Wanted," and address, to be counted as a part of the ad. Additional insertions, six cents per word per insertion. No advertisement inserted for less than $1.00 per insertion. Cash must accompany all orders.

WANTED—HELP.

WANTED—Auger machine foremen to operate hollow-tile auger machines on tonnage and bonus basis. Unlimited production. Operate year round. Address: Box 96, St. Marys, Pa. 5-4

WANTED—One brick burner for continuous kiln, and one brick setter. Will pay high wages for right man. Also want one waste ends elevator and conveyor. Address: 5-A, care of "Brick and Clay Record." 5-4

WANTED—A superintendent well qualified to take full charge of tile plant in New York State manufacturing hollow ware, drain tile, fireproofing. A fine opportunity for right man. State age and experience. Address: 6-Tile, care of "Brick and Clay Record." 6-tf

WANTED—Night brick burner for paving brick plant to assist head burner. Must be sober and steady. State recommendations, experience and salary. Apply Moberly Paving Brick Company, Moberly, Mo. 6-1

WANTED—Brick sorters of experience; also brick setters. Must be sober and industrious. Good opportunity for right party. Location of plant in New England. Address: 6-NE, care of "Brick and Clay Record." 6-3

WANTED—Sewer-pipe branch maker and moulder. Steady employment. What Cheer Clay Products Co., What Cheer, Iowa. 5-2-2P

WANTED—Reliable foreman or manager for small brick and tile factory. Send references. M. G. Alsever, Center Junction, Iowa. 6-2

WANTED—One kiln fireman for round down-draft kiln burned with coal. Address: Knob Noster Brick & Tile Co., Knob Noster, Mo. 6-1

WANTED—POSITIONS.

WANTED—Position as superintendent. Age 33; 14 years' experience in the manufacture of brick and tile. Am a draftsman and an all around mechanic. Salary: $125.00. Best of references as to character and ability. Address: 2-BP, care of "Brick and Clay Record."

WANTED—Position as superintendent to manufacture enameled tiles, white and colored, for wall, floor flint tiles, bricks or crucibles. Long and practical experience in European plants. Apply to 4-B. care of "Brick and Clay Record."

WANTED—Position as superintendent or manager of small plant. Will give best reference. Ten years' experience. Address: 6-Supt., care of "Brick and Clay Record." 6-1

WANTED—Position as superintendent or foreman of face brick, hollow ware or tile plant, 45 years old, sober, 25 years' experience. The best of references. Address: 1231 N. Illinois Street, Decatur, Ill. 6-1p

WANTED—EQUIPMENT

WANTED—One hundred feet or more second-hand Mathews Gravity Conveyors, several forty-five degree curves. If priced right, and in good condition, will buy. Address: 6-Right, care of "Brick and Clay Record." 6-2

WANTED—Machine for the manufacture of hollow building tile. If second-hand, must be in first-class condition. Address: 5-W, care of "Brick and Clay Record." 5-3

WANTED—Hardening cylinders 6 ft. or 6 ft. 6 in. in diameter. State condition and best price. Jackson & Church Co., Saginaw, Mich.

WANT TO EXCHANGE fifty single deck cars 24 inch gauge for pallet cars. Richard C. Remmey Son Co., Hedley Street and Delaware River, Philadelphia. 5-2-1

WANTED—Two small locomotives, about 10 ton, 36 in. gauge. Also relaying rail. Moore Bros., 39 S. LaSalle St., Chicago, Ill. 6-1

WANTED—1,600 ft. sixteen-pound relaying ralls, quote price. Ferro Brick Company, Watsontown, Pa.

MISCELLANEOUS

WANTED

Full managing interest in brick plant, preferably having shale and fire clay, near Chicago, Philadelphia, or New York, to introduce a new and paying line of brick. Address: 6-Brick, care of "Brick and Clay Record." 6-1

OPPORTUNITY—50 acres 75 ft. of fire clay or brick shale, no over-burden or rock. C. B. & Q. track in to the pit, and are shipping clay now to brick plants. This clay is making good tile, paving and common brick. Would like to interest some one interested in brick to locate a plant here. 70 miles south of Lincoln, Neb., and 60 miles to nearest plant. Good location in a rich and growing country. We own the land and will take stock. Fairfield Bros., Endicott, Neb. 5-2TF

FOR SALE—CLAY LANDS

FOR SALE—Large tract of fire-clay land in Southern Pennsylvania. Well-known vein; hard and soft clay; best in state. Good railroad facilities. Address: P. O. Box 584, Philadelphia, Pa. 4-2-3

FOR SALE—SAND-LIME PLANTS

SAND-BRICK PLANT FOR SALE—Tube mill, dryer, lime grinder, elevators, conveyors, friction gear for pulling brick out of chamber, 22 brick cars. Manistee Brick Co., Manistee, Mich.

FOR SALE—CLAYWORKING PLANTS.

FOR SALE—The Indiana Brick Company's plant, two miles east of Anderson, Indiana. Located at a junction of three railroads. Favorable freight rates to all markets. Daily output: Eighty Thousand One hundred and one acres of land. Plant now in operation. Equipped with modern machinery. Operated by electric power. Orders for upwards of three million bricks booked. Business well established and on a paying basis. This plant is for sale on account of the death of owner and to settle estate. Will be sold at a bargain. Address: The Indiana Brick Company, Anderson, Indiana. 5-2-3

FOR SALE OR LEASE—Twenty-thousand daily capacity brick plant. Correspondence solicited. Oscar Troy, Raton, New Mexico. 8-2-TF

BRICK PLANT FOR SALE

This plant is in good condition with all the latest brick machinery, plenty of clay, has only been in operation for four years. Good opportunity for good man. For any further information see

William H. Grothe,
262 East College Ave., York, Pa.
5-1

TO CLOSE AN ESTATE—Owing to the death of Catherine Pohl, owner of a large brickyard and plant, the business is offered for sale in part or as a whole. Business well established on paying basis. Address: Central Missouri Trust Company, Jefferson City, Mo. 4-2-4

CLAY BRICK PLANT FOR SALE—50 miles from Chicago, 4 railroads, 60 acres fine clay land. Capacity 35,000 brick per day. Good reasons for selling, worth investigating. Address: Box 85, Michigan City, Indiana. 5-3

FOR SALE—Half interest in a good paying brick and tile plant. Want to sell to some one who will assume management. Located in Eastern Iowa. Investigate if you want a good proposition. Address: 6-Interest, care of "Brick and Clay Record." 6-2

FOR SALE—Pressed brick and building block plant fully equipped and operating with plenty of clay ground of good quality. No trades, must be clean sale. Farmers & Merchants Brick & Tile Company, Marshalltown, Iowa. 6-tf

FOR SALE—Prosperous brickyard in thriving city. Only yard in county. Good orders on hand—yard in operation. Address: 6-Thriving, care of "Brick and Clay Record." 6-1p

FOR SALE—SECOND-HAND MACHINERY.

FOR SALE

8 Two yard iron clay cars. Iron dump cars, rocker-arm dump manufactured by the Atlas Car Company.

1 Lyle clay cleaner (new). Quantity of summer yard racks and wooden pallets.

24 No. 12 automatic vacuum steam traps. 1½-in. inlet and 1½-in. outlet used in connection with low pressure steam dryer known as the Illinois trap sold by American Clay Machinery Company.

Address: 5-FBC, care of "Brick and Clay Record." 5-3

USED MACHINERY IN GOOD MECHANICAL CONDITION

80 double deck steel and iron dryer cars. 100 single deck steel dryer cars. One American Ring Hammer Crusher, used 40 days. One Whitcomb 4-ton gasoline locomotive, used 8 mo. One Fate Premier and one Imperial brick machine. One Raymond Victor repress. One American Eagle repress. One Turner-Vaughn & Taylor sewer-pipe press with steel tower for second-floor delivery. One Arnold-Creager back-geared winding drum, used 30 days. One Boyd 6 ft. dry pan. One Boyd 6-mold dry press. One 4-mold Boyd dry press. One American 6 ft. exhaust fan. One lot of kiln grates like new. One Ross-Keller 4-mold dry press. Special prices for 30 days, as wanted. C. H. Horton Company, Palnesville, Ohio. 4-2TF

FOR SALE—Material from almost new brick and tile dryer; 2,000 ft. of almost new black 1-in. steam pipe, 100 ft. of 5-in. steam pipe. 37 3-in. channels, 24 ft. long (punched). Smoko stack, 54 ft. long, 3 ft. diameter. 400 wooden brick pallets at 10 cents each. Standard Lime & Stone Company, Fond du Lac, Wis. 5-2-3PX



Classified Advertisements

FOR SALE

One complete Waste Heat Drying Outfit, consisting of:

1—12 in. x 10 in. vertical American Blower engine, direct connected to 1 12-ft. American Blower fan with ¾-in. steel housing.
250—Roller-bearing, all steel, single-deck, 24-in. gauge dryer cars with bracket on one end.
1—9 in. x 9 in. Bailey engine, driving 10-ft. American Blower exhaust fan.
17,500—6-brick wooden pallets.
8,000 ft. of 12-lb. steel rail.
2—4-ft. gauge roller-bearing transfer cars, carrying 24-in. gauge track.

Also the following brick machinery:
3—36-in. gauge all steel, side-dump clay cars.
1—Wellington Machine Company Monarch No. 6 brick machine.
1—Wellington Machine Company crusher.
1—Chambers hoist.
1—Type No. 1 Thew steam shovel, ⅝-yd. dipper.
2—Ball-bearing turntables with 4-ft. track.

Will sell all of the above separately or collectively. All of this equipment is in daily operation and is in first-class condition. For further information address: Geo. H. Clippert and Bro. Brick Company, Detroit, Mich. 6-1

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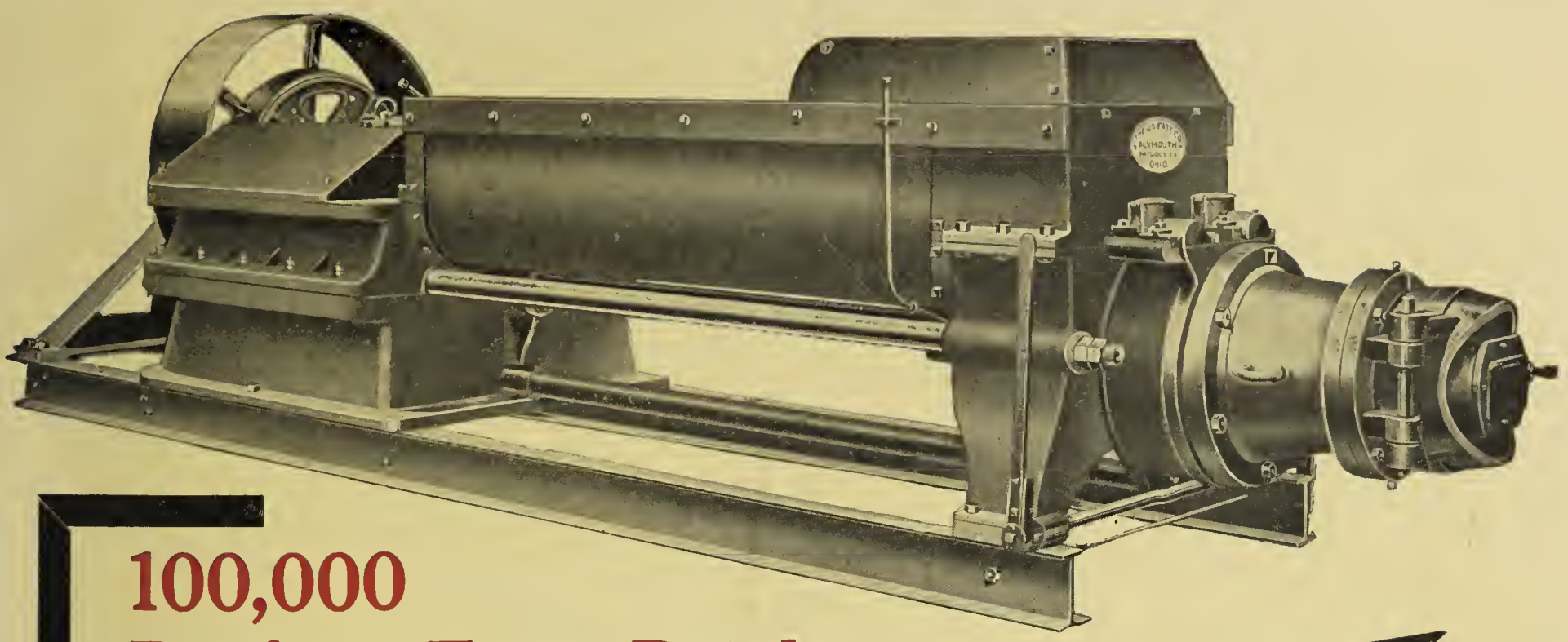
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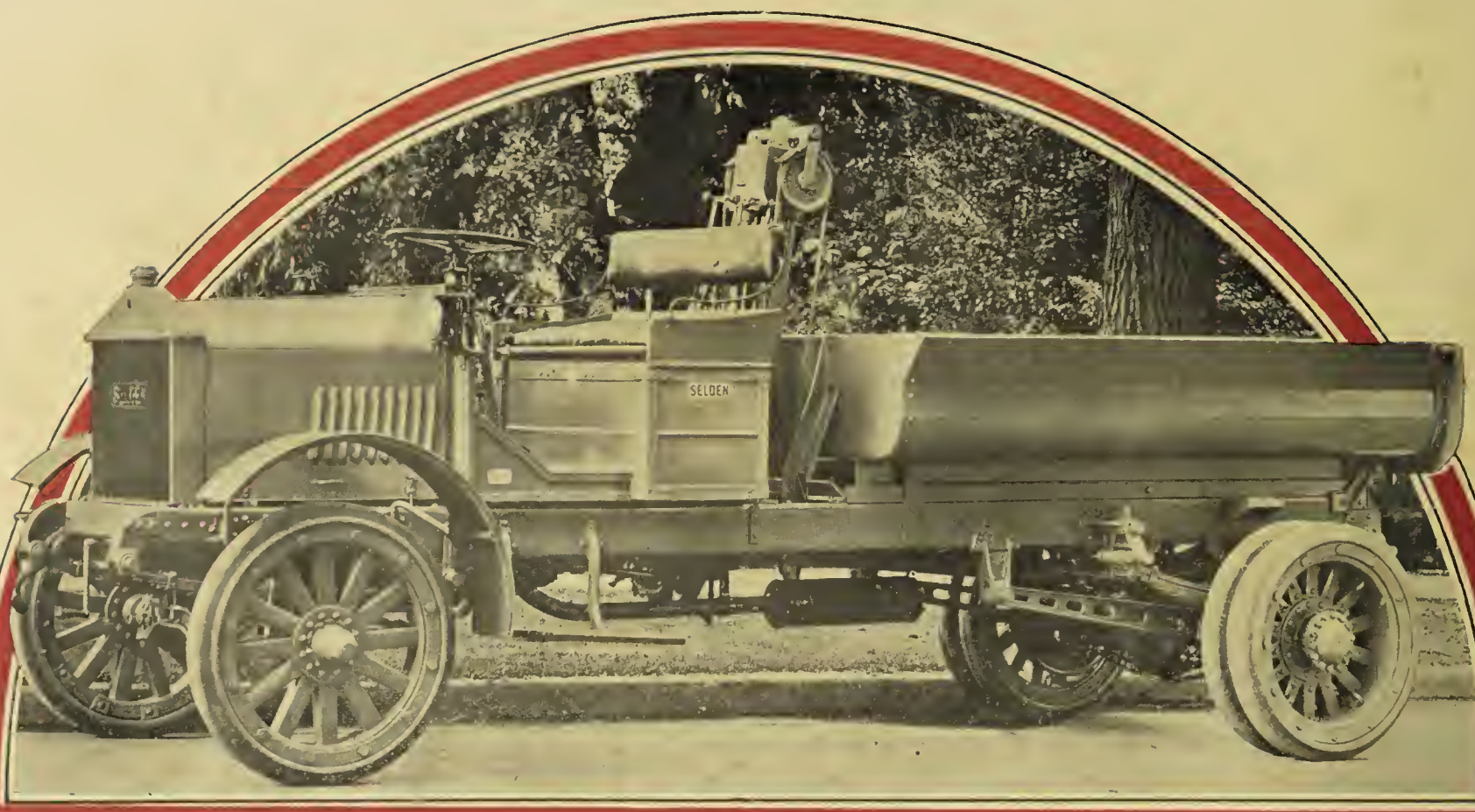
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